SEQUENCE LISTING

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<120> Mammalian DNA Binding Membrane-Associated Protein-encoding Gene and Uses

<130> 00-617-A

<140> US 09/921,099
<141> 2001-08-01

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a atg cct gtg cag gca gct caa tgg aca gaa ttt ctg tcc tgt cca atc 649
Met Pro Val Gln Ala Ala Gln Trp Thr Glu Phe Leu Ser Cys Pro Ile
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tgc tat aat gaa ttt gat gag aat gtg cac aaa ccc atc agt tta ggt 697
Cys Tyr Asn Glu Phe Asp Glu Asn Val His Lys Pro Ile Ser Leu Gly
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Cys Ser His Thr Val Cys Lys Thr Cys Leu Asn Lys Leu His Arg Lys
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gct tgt cct ttt gac cag act gcc atc aac aca gat att gat gta ctt      793
Ala Cys Pro Phe Asp Gln Thr Ala Ile Asn Thr Asp Ile Asp Val Leu
    50                  55                  60

cct gtc aac ttc gca ctt ctc cag tta gtt gga gcc cag gta cca gat      841
Pro Val Asn Phe Ala Leu Leu Gln Leu Val Gly Ala Gln Val Pro Asp
65                  70                  75                  80

cat cag tca att aag tta agt aat cta ggt gag aat aaa cac tat gag      889
His Gln Ser Ile Lys Leu Ser Asn Leu Gly Glu Asn Lys His Tyr Glu
                85                  90                  95

gtt gca aag aaa tgc gtt gag gat ttg gca ctc tac tta aaa cca cta      937
Val Ala Lys Lys Cys Val Glu Asp Leu Ala Leu Tyr Leu Lys Pro Leu
            100                 105                 110

agt gga ggt aaa ggt gta gct agc ttg aac cag agt gca ctg agc cgt      985
Ser Gly Gly Lys Gly Val Ala Ser Leu Asn Gln Ser Ala Leu Ser Arg
        115                 120                 125

cca atg caa agg aaa ctg gtg aca ctt gta aac tgt caa ctg gtg gag     1033
Pro Met Gln Arg Lys Leu Val Thr Leu Val Asn Cys Gln Leu Val Glu
    130                 135                 140

gaa gaa ggt cgt gta aga gcc atg cga gca gct cgt tcc ctt gga gaa     1081
Glu Glu Gly Arg Val Arg Ala Met Arg Ala Ala Arg Ser Leu Gly Glu
145                 150                 155                 160

aga act gta aca gaa ctg ata tta cag cac cag aac cct cag cag ttg     1129
Arg Thr Val Thr Glu Leu Ile Leu Gln His Gln Asn Pro Gln Gln Leu
                165                 170                 175

tct gcc aat cta tgg gcc gct gtc agg gct cga gga tgc cag ttt tta     1177
Ser Ala Asn Leu Trp Ala Ala Val Arg Ala Arg Gly Cys Gln Phe Leu
            180                 185                 190

ggg cca gct atg caa gaa gag gcc ttg aag ctg gtg tta ctg gca tta     1225
Gly Pro Ala Met Gln Glu Glu Ala Leu Lys Leu Val Leu Leu Ala Leu
        195                 200                 205

gaa gat ggt tct gcc ctc tca agg aaa gtt ctg gta ctt ttt gtt gtg     1273
Glu Asp Gly Ser Ala Leu Ser Arg Lys Val Leu Val Leu Phe Val Val
    210                 215                 220

cag aga cta gaa cca aga ttt cct cag gca tca aaa aca agt att ggt     1321
Gln Arg Leu Glu Pro Arg Phe Pro Gln Ala Ser Lys Thr Ser Ile Gly
225                 230                 235                 240

cat gtt gtg caa cta ctg tat cga gct tct tgt ttt aag gtt acc aaa     1369
His Val Val Gln Leu Leu Tyr Arg Ala Ser Cys Phe Lys Val Thr Lys
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aga gat gaa gac tct tcc cta atg cag ctg aag gag gaa ttt cgg agt     1417
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tat gaa gca tta cgc aga gaa cat gat gcc caa att gtt cat att gcc     1465
Tyr Glu Ala Leu Arg Arg Glu His Asp Ala Gln Ile Val His Ile Ala
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atg gaa gca gga ctc cgt att tca cct gaa cag tgg tcc tct ctt ttg     1513
Met Glu Ala Gly Leu Arg Ile Ser Pro Glu Gln Trp Ser Ser Leu Leu
    290                 295                 300

tat ggt gat ttg gct cat aaa tca cac atg cag tct atc att gat aag     1561
Tyr Gly Asp Leu Ala His Lys Ser His Met Gln Ser Ile Ile Asp Lys
305                 310                 315                 320

cta cag tct cca gag tca ttt gca aag agt gtc cag gaa ttg aca att     1609
Leu Gln Ser Pro Glu Ser Phe Ala Lys Ser Val Gln Glu Leu Thr Ile
                325                 330                 335

gtt ttg caa cga aca ggt gac cca gct aac tta aat aga ctg agg cct     1657
Val Leu Gln Arg Thr Gly Asp Pro Ala Asn Leu Asn Arg Leu Arg Pro
            340                 345                 350

cat tta gag ctt ctt gca aac ata gac cct aat cca gac gct gtt tca     1705
His Leu Glu Leu Leu Ala Asn Ile Asp Pro Asn Pro Asp Ala Val Ser
        355                 360                 365

cca act tgg gag cag ctg gaa aat gca atg gta gct gtt aaa aca gta     1753
Pro Thr Trp Glu Gln Leu Glu Asn Ala Met Val Ala Val Lys Thr Val
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gtt cat ggc ctt gtg gac ttc ata caa aat tat agt aga aaa ggc cat     1801
Val His Gly Leu Val Asp Phe Ile Gln Asn Tyr Ser Arg Lys Gly His
385                 390                 395                 400

gag acc cct cag cct cag cca aac agc aaa tac aag act agc atg tgc     1849
Glu Thr Pro Gln Pro Gln Pro Asn Ser Lys Tyr Lys Thr Ser Met Cys
                405                 410                 415

cga gat ttg cga cag cag ggg ggt tgt cca cga gga aca aat tgt aca     1897
Arg Asp Leu Arg Gln Gln Gly Gly Cys Pro Arg Gly Thr Asn Cys Thr
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ttt gcc cat tct cag gaa gag ctt gaa aag tat cga tta agg aac aaa     1945
Phe Ala His Ser Gln Glu Glu Leu Glu Lys Tyr Arg Leu Arg Asn Lys
        435                 440                 445

aag atc aat gcc act gta aga acg ttt cct ctt cta aat aaa gtt ggt     1993
Lys Ile Asn Ala Thr Val Arg Thr Phe Pro Leu Leu Asn Lys Val Gly
    450                 455                 460

gta aac aac act gtc aca acc aca gcc gga aat gtc att tct gtc ata     2041
Val Asn Asn Thr Val Thr Thr Thr Ala Gly Asn Val Ile Ser Val Ile
465                 470                 475                 480

gga agt act gaa aca aca ggg aaa att gtt cca agt aca aac gga att     2089
Gly Ser Thr Glu Thr Thr Gly Lys Ile Val Pro Ser Thr Asn Gly Ile
                485                 490                 495
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tca aat gca gaa aac agt gtt tcc cag cta atc tca cgt agt act gac     2137
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agt acc tta aga gct ctg gag acc gtg aag aaa gtg gga aag gtt ggc     2185
Ser Thr Leu Arg Ala Leu Glu Thr Val Lys Lys Val Gly Lys Val Gly
        515                 520                 525

gct aat ggt cag aat gct gct ggg ccc tct gca gat tct gta act gaa     2233
Ala Asn Gly Gln Asn Ala Ala Gly Pro Ser Ala Asp Ser Val Thr Glu
    530                 535                 540

aat aaa att ggt tct cca ccc aag act cct gta agt aat gta gca gct     2281
Asn Lys Ile Gly Ser Pro Pro Lys Thr Pro Val Ser Asn Val Ala Ala
545                 550                 555                 560

acc tca gct ggg ccc tct aat gtt gga aca gag ctg aat tct gtg cct     2329
Thr Ser Ala Gly Pro Ser Asn Val Gly Thr Glu Leu Asn Ser Val Pro
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caa aaa tcc agc cca ttt cta act aga gta cca gta tat cct ccg cat     2377
Gln Lys Ser Ser Pro Phe Leu Thr Arg Val Pro Val Tyr Pro Pro His
            580                 585                 590

tct gaa aac att cag tat ttt caa gat cca agg act cag ata ccc ttt     2425
Ser Glu Asn Ile Gln Tyr Phe Gln Asp Pro Arg Thr Gln Ile Pro Phe
        595                 600                 605

gaa gtc cca cag tac cca cag aca gga tac tat cca cca cct cca acg     2473
Glu Val Pro Gln Tyr Pro Gln Thr Gly Tyr Tyr Pro Pro Pro Pro Thr
    610                 615                 620

gta cca gct ggt gtg gct ccc tgt gtt cct cgc ttt gtg agg tcc aat     2521
Val Pro Ala Gly Val Ala Pro Cys Val Pro Arg Phe Val Arg Ser Asn
625                 630                 635                 640

aac gtt cca gag tcc tcc ctc cca cct gct tcc atg cca tat gcc gat     2569
Asn Val Pro Glu Ser Ser Leu Pro Pro Ala Ser Met Pro Tyr Ala Asp
                645                 650                 655

cat tac agt aca ttt tcc cct cga gat cga atg aat tct tct cct tac     2617
His Tyr Ser Thr Phe Ser Pro Arg Asp Arg Met Asn Ser Ser Pro Tyr
            660                 665                 670

cag cct cct cct ccg cag ccg tat gga cca gtt cct cca gta cct tct     2665
Gln Pro Pro Pro Pro Gln Pro Tyr Gly Pro Val Pro Pro Val Pro Ser
        675                 680                 685

gga atg tat gct cct gtg tac gac agc agg cgc atc tgg cgc cca cct     2713
Gly Met Tyr Ala Pro Val Tyr Asp Ser Arg Arg Ile Trp Arg Pro Pro
    690                 695                 700

atg tac caa cga gat gac att att aga agc aat tct tta cct cca atg     2761
Met Tyr Gln Arg Asp Asp Ile Ile Arg Ser Asn Ser Leu Pro Pro Met
705                 710                 715                 720
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gat gtg atg cac tca tct gtc tat cag aca tct ttg cgg gaa aga tat     2809
Asp Val Met His Ser Ser Val Tyr Gln Thr Ser Leu Arg Glu Arg Tyr
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aac tca tta gat gga tat tat tcg gtg gct tgt cag cca cca agt gag     2857
Asn Ser Leu Asp Gly Tyr Tyr Ser Val Ala Cys Gln Pro Pro Ser Glu
            740                 745                 750

cca agg aca act gtg cct tta cca agg gaa cct tgt ggt cat ttg aag     2905
Pro Arg Thr Thr Val Pro Leu Pro Arg Glu Pro Cys Gly His Leu Lys
        755                 760                 765

acc agt tgc gag gag cag ata aga aga aag cca gat cag tgg gca cag     2953
Thr Ser Cys Glu Glu Gln Ile Arg Arg Lys Pro Asp Gln Trp Ala Gln
    770                 775                 780

tac cac act cag aaa gca cct ctt gtc tct tca act ctt cct gtg gca     3001
Tyr His Thr Gln Lys Ala Pro Leu Val Ser Ser Thr Leu Pro Val Ala
785                 790                 795                 800

aca cag tca cca aca cca cct tct cct ctg ttc agt gta gac ttt cgt     3049
Thr Gln Ser Pro Thr Pro Pro Ser Pro Leu Phe Ser Val Asp Phe Arg
                805                 810                 815

gcg gat ttc tca gag agt gtg agt ggt aca aaa ttt gaa gaa gat cat     3097
Ala Asp Phe Ser Glu Ser Val Ser Gly Thr Lys Phe Glu Glu Asp His
            820                 825                 830

ctt tcc cat tat tct ccc tgg tct tgt ggc acc ata ggc tcc tgt ata     3145
Leu Ser His Tyr Ser Pro Trp Ser Cys Gly Thr Ile Gly Ser Cys Ile
        835                 840                 845

aat gcc att gat tca gag ccc aaa gat gtc att gct aat tca aat gct     3193
Asn Ala Ile Asp Ser Glu Pro Lys Asp Val Ile Ala Asn Ser Asn Ala
    850                 855                 860

gtg tta atg gac ctg gac agt ggt gat gtt aag aga aga gta cat tta     3241
Val Leu Met Asp Leu Asp Ser Gly Asp Val Lys Arg Arg Val His Leu
865                 870                 875                 880

ttt gaa acc cag aga agg aca aaa gaa gaa gat cca ata att ccc ttt     3289
Phe Glu Thr Gln Arg Arg Thr Lys Glu Glu Asp Pro Ile Ile Pro Phe
                885                 890                 895

agt gat gga ccc atc atc tca aaa tgg ggt gcg att tcc aga tct tcc     3337
Ser Asp Gly Pro Ile Ile Ser Lys Trp Gly Ala Ile Ser Arg Ser Ser
            900                 905                 910

cgt aca ggt tac cat acc aca gat cct gtc cag gcc act gct tcc caa     3385
Arg Thr Gly Tyr His Thr Thr Asp Pro Val Gln Ala Thr Ala Ser Gln
        915                 920                 925

gga agt gcg act aag ccc atc agt gta tca gat tat gtc cct tat gtc     3433
Gly Ser Ala Thr Lys Pro Ile Ser Val Ser Asp Tyr Val Pro Tyr Val
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aat gct gtt gat tca agg tgg agt tca tat ggc aac gag gcc aca tca     3481
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Asn Ala Val Asp Ser Arg Trp Ser Ser Tyr Gly Asn Glu Ala Thr Ser
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tca gca cac tat gtt gaa agg gac aga ttc att gtt act gat tta tct     3529
Ser Ala His Tyr Val Glu Arg Asp Arg Phe Ile Val Thr Asp Leu Ser
                965                 970                 975

ggt cat aga aag cat tcc agt act ggg gac ctt ttg agc ctt gaa ctt     3577
Gly His Arg Lys His Ser Ser Thr Gly Asp Leu Leu Ser Leu Glu Leu
            980                 985                 990

cag cag gcc aag agc aac tca tta  ctt ctt cag aga gag  gcc aat gct   3625
Gln Gln Ala Lys Ser Asn Ser Leu  Leu Leu Gln Arg Glu  Ala Asn Ala
        995                 1000                1005

ttg gcc  atg caa cag aag tgg  aat tcc ctg gat gaa  ggc cgt cac      3670
Leu Ala  Met Gln Gln Lys Trp  Asn Ser Leu Asp Glu  Gly Arg His
    1010                1015                1020

ctt acc  tta aac ctt tta agc  aag gaa att gaa cta  aga aat gga      3715
Leu Thr  Leu Asn Leu Leu Ser  Lys Glu Ile Glu Leu  Arg Asn Gly
    1025                1030                1035

gag tta  cag agt gat tat aca  gaa gat gca aca gat  act aaa cct      3760
Glu Leu  Gln Ser Asp Tyr Thr  Glu Asp Ala Thr Asp  Thr Lys Pro
    1040                1045                1050

gat agg  gat atc gag tta gag  ctt tca gca ctt gat  act gat gaa      3805
Asp Arg  Asp Ile Glu Leu Glu  Leu Ser Ala Leu Asp  Thr Asp Glu
    1055                1060                1065

cct gat  gga caa agt gaa cca  att gaa gag atc ttg  gac ata cag      3850
Pro Asp  Gly Gln Ser Glu Pro  Ile Glu Glu Ile Leu  Asp Ile Gln
    1070                1075                1080

ctt ggt  atc agt tct caa aat  gat cag ttg cta aat  gga atg gca      3895
Leu Gly  Ile Ser Ser Gln Asn  Asp Gln Leu Leu Asn  Gly Met Ala
    1085                1090                1095

gtg gaa  aat ggg cat cca gta  cag cag cac caa aag  gag cca cca      3940
Val Glu  Asn Gly His Pro Val  Gln Gln His Gln Lys  Glu Pro Pro
    1100                1105                1110

aag cag  aag aaa cag agt tta  ggt gaa gac cat gtg  att ctg gag      3985
Lys Gln  Lys Lys Gln Ser Leu  Gly Glu Asp His Val  Ile Leu Glu
    1115                1120                1125

gag caa  aaa aca att ctg ccg  gta act tct tgc ttt  agc cag cca      4030
Glu Gln  Lys Thr Ile Leu Pro  Val Thr Ser Cys Phe  Ser Gln Pro
    1130                1135                1140

ctc cca  gtg tct att agc aat  gca agt tgc ctc ccc  atc acc aca      4075
Leu Pro  Val Ser Ile Ser Asn  Ala Ser Cys Leu Pro  Ile Thr Thr
    1145                1150                1155

tct gtc  agt gct ggc aac ctc  att ctg aaa act cat  gtt atg tct      4120
Ser Val  Ser Ala Gly Asn Leu  Ile Leu Lys Thr His  Val Met Ser
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    1160                1165                1170

gaa gat  aaa aac gac ttt tta  aaa cct gtt gca aat  ggg aag atg      4165
Glu Asp  Lys Asn Asp Phe Leu  Lys Pro Val Ala Asn  Gly Lys Met
    1175                1180                1185

gtt aac  agc tgaaaggagg ttcatctttc aaatttgtga ccacaccatg          4214
Val Asn  Ser
    1190

gaagcattta cactagcttt ttatatatat aatatatatt atataatgta tatttttttt  4274

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Cys Ser His Thr Val Cys Lys Thr Cys Leu Asn Lys Leu His Arg Lys
        35                  40                  45

Ala Cys Pro Phe Asp Gln Thr Ala Ile Asn Thr Asp Ile Asp Val Leu
    50                  55                  60

Pro Val Asn Phe Ala Leu Leu Gln Leu Val Gly Ala Gln Val Pro Asp
65                  70                  75                  80

His Gln Ser Ile Lys Leu Ser Asn Leu Gly Glu Asn Lys His Tyr Glu
                85                  90                  95

Val Ala Lys Lys Cys Val Glu Asp Leu Ala Leu Tyr Leu Lys Pro Leu
            100                 105                 110

Ser Gly Gly Lys Gly Val Ala Ser Leu Asn Gln Ser Ala Leu Ser Arg
        115                 120                 125

Pro Met Gln Arg Lys Leu Val Thr Leu Val Asn Cys Gln Leu Val Glu
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Glu Glu Gly Arg Val Arg Ala Met Arg Ala Ala Arg Ser Leu Gly Glu
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Arg Thr Val Thr Glu Leu Ile Leu Gln His Gln Asn Pro Gln Gln Leu
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Ser Ala Asn Leu Trp Ala Ala Val Arg Ala Arg Gly Cys Gln Phe Leu
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Gly Pro Ala Met Gln Glu Glu Ala Leu Lys Leu Val Leu Leu Ala Leu
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Glu Asp Gly Ser Ala Leu Ser Arg Lys Val Leu Val Leu Phe Val Val
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Gln Arg Leu Glu Pro Arg Phe Pro Gln Ala Ser Lys Thr Ser Ile Gly
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His Val Val Gln Leu Leu Tyr Arg Ala Ser Cys Phe Lys Val Thr Lys
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Arg Asp Glu Asp Ser Ser Leu Met Gln Leu Lys Glu Glu Phe Arg Ser
260 265 270

Tyr Glu Ala Leu Arg Arg Glu His Asp Ala Gln Ile Val His Ile Ala
275 280 285

Met Glu Ala Gly Leu Arg Ile Ser Pro Glu Gln Trp Ser Ser Leu Leu
290 295 300

Tyr Gly Asp Leu Ala His Lys Ser His Met Gln Ser Ile Ile Asp Lys
305 310 315 320

Leu Gln Ser Pro Glu Ser Phe Ala Lys Ser Val Gln Glu Leu Thr Ile
325 330 335

Val Leu Gln Arg Thr Gly Asp Pro Ala Asn Leu Asn Arg Leu Arg Pro
340 345 350

His Leu Glu Leu Leu Ala Asn Ile Asp Pro Asn Pro Asp Ala Val Ser
355 360 365

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Pro Thr Trp Glu Gln Leu Glu Asn Ala Met Val Ala Val Lys Thr Val
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Val His Gly Leu Val Asp Phe Ile Gln Asn Tyr Ser Arg Lys Gly His
385                 390                 395                 400

Glu Thr Pro Gln Pro Gln Pro Asn Ser Lys Tyr Lys Thr Ser Met Cys
                405                 410                 415

Arg Asp Leu Arg Gln Gln Gly Gly Cys Pro Arg Gly Thr Asn Cys Thr
            420                 425                 430

Phe Ala His Ser Gln Glu Glu Leu Glu Lys Tyr Arg Leu Arg Asn Lys
        435                 440                 445

Lys Ile Asn Ala Thr Val Arg Thr Phe Pro Leu Leu Asn Lys Val Gly
    450                 455                 460

Val Asn Asn Thr Val Thr Thr Thr Ala Gly Asn Val Ile Ser Val Ile
465                 470                 475                 480

Gly Ser Thr Glu Thr Thr Gly Lys Ile Val Pro Ser Thr Asn Gly Ile
                485                 490                 495

Ser Asn Ala Glu Asn Ser Val Ser Gln Leu Ile Ser Arg Ser Thr Asp
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Ser Thr Leu Arg Ala Leu Glu Thr Val Lys Lys Val Gly Lys Val Gly
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Ala Asn Gly Gln Asn Ala Ala Gly Pro Ser Ala Asp Ser Val Thr Glu
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Asn Lys Ile Gly Ser Pro Pro Lys Thr Pro Val Ser Asn Val Ala Ala
545                 550                 555                 560

Thr Ser Ala Gly Pro Ser Asn Val Gly Thr Glu Leu Asn Ser Val Pro
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Gln Lys Ser Ser Pro Phe Leu Thr Arg Val Pro Val Tyr Pro Pro His
            580                 585                 590
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Ser Glu Asn Ile Gln Tyr Phe Gln Asp Pro Arg Thr Gln Ile Pro Phe
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Glu Val Pro Gln Tyr Pro Gln Thr Gly Tyr Tyr Pro Pro Pro Pro Thr
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Val Pro Ala Gly Val Ala Pro Cys Val Pro Arg Phe Val Arg Ser Asn
625                 630                 635                 640

Asn Val Pro Glu Ser Ser Leu Pro Pro Ala Ser Met Pro Tyr Ala Asp
                645                 650                 655

His Tyr Ser Thr Phe Ser Pro Arg Asp Arg Met Asn Ser Ser Pro Tyr
            660                 665                 670

Gln Pro Pro Pro Pro Gln Pro Tyr Gly Pro Val Pro Pro Val Pro Ser
        675                 680                 685

Gly Met Tyr Ala Pro Val Tyr Asp Ser Arg Arg Ile Trp Arg Pro Pro
    690                 695                 700

Met Tyr Gln Arg Asp Asp Ile Ile Arg Ser Asn Ser Leu Pro Pro Met
705                 710                 715                 720

Asp Val Met His Ser Ser Val Tyr Gln Thr Ser Leu Arg Glu Arg Tyr
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Asn Ser Leu Asp Gly Tyr Tyr Ser Val Ala Cys Gln Pro Pro Ser Glu
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Pro Arg Thr Thr Val Pro Leu Pro Arg Glu Pro Cys Gly His Leu Lys
        755                 760                 765

Thr Ser Cys Glu Glu Gln Ile Arg Arg Lys Pro Asp Gln Trp Ala Gln
    770                 775                 780

Tyr His Thr Gln Lys Ala Pro Leu Val Ser Ser Thr Leu Pro Val Ala
785                 790                 795                 800

Thr Gln Ser Pro Thr Pro Pro Ser Pro Leu Phe Ser Val Asp Phe Arg
                805                 810                 815
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Ala Asp Phe Ser Glu Ser Val Ser Gly Thr Lys Phe Glu Glu Asp His
            820                 825                 830

Leu Ser His Tyr Ser Pro Trp Ser Cys Gly Thr Ile Gly Ser Cys Ile
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Asn Ala Ile Asp Ser Glu Pro Lys Asp Val Ile Ala Asn Ser Asn Ala
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Val Leu Met Asp Leu Asp Ser Gly Asp Val Lys Arg Arg Val His Leu
865                 870                 875                 880

Phe Glu Thr Gln Arg Arg Thr Lys Glu Glu Asp Pro Ile Ile Pro Phe
                885                 890                 895

Ser Asp Gly Pro Ile Ile Ser Lys Trp Gly Ala Ile Ser Arg Ser Ser
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Arg Thr Gly Tyr His Thr Thr Asp Pro Val Gln Ala Thr Ala Ser Gln
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Gly Ser Ala Thr Lys Pro Ile Ser Val Ser Asp Tyr Val Pro Tyr Val
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Asn Ala Val Asp Ser Arg Trp Ser Ser Tyr Gly Asn Glu Ala Thr Ser
945                 950                 955                 960

Ser Ala His Tyr Val Glu Arg Asp Arg Phe Ile Val Thr Asp Leu Ser
                965                 970                 975

Gly His Arg Lys His Ser Ser Thr Gly Asp Leu Leu Ser Leu Glu Leu
            980                 985                 990

Gln Gln Ala Lys Ser Asn Ser Leu  Leu Leu Gln Arg Glu  Ala Asn Ala
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Leu Ala  Met Gln Gln Lys Trp  Asn Ser Leu Asp Glu  Gly Arg His
    1010                1015                1020

Leu Thr  Leu Asn Leu Leu Ser  Lys Glu Ile Glu Leu  Arg Asn Gly
    1025                1030                1035

Glu Leu  Gln Ser Asp Tyr Thr  Glu Asp Ala Thr Asp  Thr Lys Pro
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Asp Arg Asp Ile Glu Leu Glu Leu Ser Ala Leu Asp Thr Asp Glu
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Pro Asp Gly Gln Ser Glu Pro Ile Glu Glu Ile Leu Asp Ile Gln
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Leu Gly Ile Ser Ser Gln Asn Asp Gln Leu Leu Asn Gly Met Ala
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Val Glu Asn Gly His Pro Val Gln Gln His Gln Lys Glu Pro Pro
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Lys Gln Lys Lys Gln Ser Leu Gly Glu Asp His Val Ile Leu Glu
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Glu Gln Lys Thr Ile Leu Pro Val Thr Ser Cys Phe Ser Gln Pro
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Leu Pro Val Ser Ile Ser Asn Ala Ser Cys Leu Pro Ile Thr Thr
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tattatgttt tggggtactg gttatccaag ggaaacactt ttttaaacaa caaaacaaaa    180

aaaccgccca gcagtccaaa gtaatttgtg ttcctaaaaa tggaatatgg aaagttaatt    240

tgcttgtttg atgtggtcgt tgagaaaaat acataaaagc tttgatgttt attatgtgag    300

caaccaatat aaatacagtt tagttgaaag gaacactatt aaggtattgt ttccaggcag    360

aatttcagaa atgtaattaa ttcagcaaat aggtttttta aaaaagacat ccaaaggtta    420

taaaattatt tagaagtatt ttaggtctga agctgtaata gttgacttaa gcaattaact    480

cttcaaaggt gaatgatgaa tatgtggtta attcatactt ttgtccattt ctagcttaca    540

aaacactaca cagcaaaata atgatctgct agactgctaa cccgagcatc cagcttccac    600

a atg gct gtg cag gca gct caa tgg aca gaa ttt ctg tcc tgt cca atc    649
  Met Ala Val Gln Ala Ala Gln Trp Thr Glu Phe Leu Ser Cys Pro Ile
  1               5                  10                  15

tgc tat aat gaa ttt gat gag aat gtg cac aaa ccc atc agt tta ggt      697
Cys Tyr Asn Glu Phe Asp Glu Asn Val His Lys Pro Ile Ser Leu Gly
            20                  25                  30

tgt tca cac act gtt tgc aag acc tgc ttg aat aaa ctt cat cga aaa      745
Cys Ser His Thr Val Cys Lys Thr Cys Leu Asn Lys Leu His Arg Lys
        35                  40                  45

gct tgt cct ttt gac cag act gcc atc aac aca gat att gat gta ctt      793
Ala Cys Pro Phe Asp Gln Thr Ala Ile Asn Thr Asp Ile Asp Val Leu
    50                  55                  60

cct gtc aac ttc gca ctt ctc cag tta gtt gga gcc cag gta cca gat      841
Pro Val Asn Phe Ala Leu Leu Gln Leu Val Gly Ala Gln Val Pro Asp
65                  70                  75                  80

cat cag tca att aag tta agt aat cta ggt gag aat aaa cac tat gag      889
His Gln Ser Ile Lys Leu Ser Asn Leu Gly Glu Asn Lys His Tyr Glu
                85                  90                  95

gtt gca aag aaa tgc gtt gag gat ttg gca ctc tac tta aaa cca cta      937
Val Ala Lys Lys Cys Val Glu Asp Leu Ala Leu Tyr Leu Lys Pro Leu
            100                 105                 110

agt gga ggt aaa ggt gta gct agc ttg aac cag agt gca ctg agc cgt      985
Ser Gly Gly Lys Gly Val Ala Ser Leu Asn Gln Ser Ala Leu Ser Arg
        115                 120                 125

cca atg caa agg aaa ctg gtg aca ctt gta aac tgt caa ctg gtg gag     1033
Pro Met Gln Arg Lys Leu Val Thr Leu Val Asn Cys Gln Leu Val Glu
    130                 135                 140

gaa gaa ggt cgt gta aga gcc atg cga gca gct cgt tcc ctt gga gaa     1081
Glu Glu Gly Arg Val Arg Ala Met Arg Ala Ala Arg Ser Leu Gly Glu
145                 150                 155                 160

aga act gta aca gaa ctg ata tta cag cac cag aac cct cag cag ttg     1129
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Arg Thr Val Thr Glu Leu Ile Leu Gln His Gln Asn Pro Gln Gln Leu
                165                 170                 175

tct gcc aat cta tgg gcc gct gtc agg gct cga gga tgc cag ttt tta     1177
Ser Ala Asn Leu Trp Ala Ala Val Arg Ala Arg Gly Cys Gln Phe Leu
            180                 185                 190

ggg cca gct atg caa gaa gag gcc ttg aag ctg gtg tta ctg gca tta     1225
Gly Pro Ala Met Gln Glu Glu Ala Leu Lys Leu Val Leu Leu Ala Leu
        195                 200                 205

gaa gat ggt tct gcc ctc tca agg aaa gtt ctg gta ctt ttt gtt gtg     1273
Glu Asp Gly Ser Ala Leu Ser Arg Lys Val Leu Val Leu Phe Val Val
    210                 215                 220

cag aga cta gaa cca aga ttt cct cag gca tca aaa aca agt att ggt     1321
Gln Arg Leu Glu Pro Arg Phe Pro Gln Ala Ser Lys Thr Ser Ile Gly
225                 230                 235                 240

cat gtt gtg caa cta ctg tat cga gct tct tgt ttt aag gtt acc aaa     1369
His Val Val Gln Leu Leu Tyr Arg Ala Ser Cys Phe Lys Val Thr Lys
                245                 250                 255

aga gat gaa gac tct tcc cta atg cag ctg aag gag gaa ttt cgg agt     1417
Arg Asp Glu Asp Ser Ser Leu Met Gln Leu Lys Glu Glu Phe Arg Ser
            260                 265                 270

tat gaa gca tta cgc aga gaa cat gat gcc caa att gtt cat att gcc     1465
Tyr Glu Ala Leu Arg Arg Glu His Asp Ala Gln Ile Val His Ile Ala
        275                 280                 285

atg gaa gca gga ctc cgt att tca cct gaa cag tgg tcc tct ctt ttg     1513
Met Glu Ala Gly Leu Arg Ile Ser Pro Glu Gln Trp Ser Ser Leu Leu
    290                 295                 300

tat ggt gat ttg gct cat aaa tca cac atg cag tct atc att gat aag     1561
Tyr Gly Asp Leu Ala His Lys Ser His Met Gln Ser Ile Ile Asp Lys
305                 310                 315                 320

cta cag tct cca gag tca ttt gca aag agt gtc cag gaa ttg aca att     1609
Leu Gln Ser Pro Glu Ser Phe Ala Lys Ser Val Gln Glu Leu Thr Ile
                325                 330                 335

gtt ttg caa cga aca ggt gac cca gct aac tta aat aga ctg agg cct     1657
Val Leu Gln Arg Thr Gly Asp Pro Ala Asn Leu Asn Arg Leu Arg Pro
            340                 345                 350

cat tta gag ctt ctt gca aac ata gac cct aat cca gac gct gtt tca     1705
His Leu Glu Leu Leu Ala Asn Ile Asp Pro Asn Pro Asp Ala Val Ser
        355                 360                 365

cca act tgg gag cag ctg gaa aat gca atg gta gct gtt aaa aca gta     1753
Pro Thr Trp Glu Gln Leu Glu Asn Ala Met Val Ala Val Lys Thr Val
    370                 375                 380

gtt cat ggc ctt gtg gac ttc ata caa aat tat agt aga aaa ggc cat     1801
Val His Gly Leu Val Asp Phe Ile Gln Asn Tyr Ser Arg Lys Gly His
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385                 390                 395                 400

gag acc cct cag cct cag cca aac agc aaa tac aag act agc atg tgc     1849
Glu Thr Pro Gln Pro Gln Pro Asn Ser Lys Tyr Lys Thr Ser Met Cys
                405                 410                 415

cga gat ttg cga cag cag ggg ggt tgt cca cga gga aca aat tgt aca     1897
Arg Asp Leu Arg Gln Gln Gly Gly Cys Pro Arg Gly Thr Asn Cys Thr
            420                 425                 430

ttt gcc cat tct cag gaa gag ctt gaa aag tat cga tta agg aac aaa     1945
Phe Ala His Ser Gln Glu Glu Leu Glu Lys Tyr Arg Leu Arg Asn Lys
        435                 440                 445

aag atc aat gcc act gta aga acg ttt cct ctt cta aat aaa gtt ggt     1993
Lys Ile Asn Ala Thr Val Arg Thr Phe Pro Leu Leu Asn Lys Val Gly
    450                 455                 460

gta aac aac act gtc aca acc aca gcc gga aat gtc att tct gtc ata     2041
Val Asn Asn Thr Val Thr Thr Thr Ala Gly Asn Val Ile Ser Val Ile
465                 470                 475                 480

gga agt act gaa aca aca ggg aaa att gtt cca agt aca aac gga att     2089
Gly Ser Thr Glu Thr Thr Gly Lys Ile Val Pro Ser Thr Asn Gly Ile
                485                 490                 495

tca aat gca gaa aac agt gtt tcc cag cta atc tca cgt agt act gac     2137
Ser Asn Ala Glu Asn Ser Val Ser Gln Leu Ile Ser Arg Ser Thr Asp
            500                 505                 510

agt acc tta aga gct ctg gag acc gtg aag aaa gtg gga aag gtt ggc     2185
Ser Thr Leu Arg Ala Leu Glu Thr Val Lys Lys Val Gly Lys Val Gly
        515                 520                 525

gct aat ggt cag aat gct gct ggg ccc tct gca gat tct gta act gaa     2233
Ala Asn Gly Gln Asn Ala Ala Gly Pro Ser Ala Asp Ser Val Thr Glu
    530                 535                 540

aat aaa att ggt tct cca ccc aag act cct gta agt aat gta gca gct     2281
Asn Lys Ile Gly Ser Pro Pro Lys Thr Pro Val Ser Asn Val Ala Ala
545                 550                 555                 560

acc tca gct ggg ccc tct aat gtt gga aca gag ctg aat tct gtg cct     2329
Thr Ser Ala Gly Pro Ser Asn Val Gly Thr Glu Leu Asn Ser Val Pro
                565                 570                 575

caa aaa tcc agc cca ttt cta act aga gta cca gta tat cct ccg cat     2377
Gln Lys Ser Ser Pro Phe Leu Thr Arg Val Pro Val Tyr Pro Pro His
            580                 585                 590

tct gaa aac att cag tat ttt caa gat cca agg act cag ata ccc ttt     2425
Ser Glu Asn Ile Gln Tyr Phe Gln Asp Pro Arg Thr Gln Ile Pro Phe
        595                 600                 605

gaa gtc cca cag tac cca cag aca gga tac tat cca cca cct cca acg     2473
Glu Val Pro Gln Tyr Pro Gln Thr Gly Tyr Tyr Pro Pro Pro Pro Thr
    610                 615                 620
```

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gta cca gct ggt gtg gct ccc tgt gtt cct cgc ttt gtg agg tcc aat     2521
Val Pro Ala Gly Val Ala Pro Cys Val Pro Arg Phe Val Arg Ser Asn
625                 630                 635                 640

aac gtt cca gag tcc tcc ctc cca cct gct tcc atg cca tat gcc gat     2569
Asn Val Pro Glu Ser Ser Leu Pro Pro Ala Ser Met Pro Tyr Ala Asp
                645                 650                 655

cat tac agt aca ttt tcc cct cga gat cga atg aat tct tct cct tac     2617
His Tyr Ser Thr Phe Ser Pro Arg Asp Arg Met Asn Ser Ser Pro Tyr
            660                 665                 670

cag cct cct cct ccg cag ccg tat gga cca gtt cct cca gta cct tct     2665
Gln Pro Pro Pro Pro Gln Pro Tyr Gly Pro Val Pro Pro Val Pro Ser
        675                 680                 685

gga atg tat gct cct gtg tac gac agc agg cgc atc tgg cgc cca cct     2713
Gly Met Tyr Ala Pro Val Tyr Asp Ser Arg Arg Ile Trp Arg Pro Pro
    690                 695                 700

atg tac caa cga gat gac att att aga agc aat tct tta cct cca atg     2761
Met Tyr Gln Arg Asp Asp Ile Ile Arg Ser Asn Ser Leu Pro Pro Met
705                 710                 715                 720

gat gtg atg cac tca tct gtc tat cag aca tct ttg cgg gaa aga tat     2809
Asp Val Met His Ser Ser Val Tyr Gln Thr Ser Leu Arg Glu Arg Tyr
                725                 730                 735

aac tca tta gat gga tat tat tcg gtg gct tgt cag cca cca agt gag     2857
Asn Ser Leu Asp Gly Tyr Tyr Ser Val Ala Cys Gln Pro Pro Ser Glu
            740                 745                 750

cca agg aca act gtg cct tta cca agg gaa cct tgt ggt cat ttg aag     2905
Pro Arg Thr Thr Val Pro Leu Pro Arg Glu Pro Cys Gly His Leu Lys
        755                 760                 765

acc agt tgc gag gag cag ata aga aga aag cca gat cag tgg gca cag     2953
Thr Ser Cys Glu Glu Gln Ile Arg Arg Lys Pro Asp Gln Trp Ala Gln
    770                 775                 780

tac cac act cag aaa gca cct ctt gtc tct tca act ctt cct gtg gca     3001
Tyr His Thr Gln Lys Ala Pro Leu Val Ser Ser Thr Leu Pro Val Ala
785                 790                 795                 800

aca cag tca cca aca cca cct tct cct ctg ttc agt gta gac ttt cgt     3049
Thr Gln Ser Pro Thr Pro Pro Ser Pro Leu Phe Ser Val Asp Phe Arg
                805                 810                 815

gcg gat ttc tca gag agt gtg agt ggt aca aaa ttt gaa gaa gat cat     3097
Ala Asp Phe Ser Glu Ser Val Ser Gly Thr Lys Phe Glu Glu Asp His
            820                 825                 830

ctt tcc cat tat tct ccc tgg tct tgt ggc acc ata ggc tcc tgt ata     3145
Leu Ser His Tyr Ser Pro Trp Ser Cys Gly Thr Ile Gly Ser Cys Ile
        835                 840                 845
```

```
aat gcc att gat tca gag ccc aaa gat gtc att gct aat tca aat gct     3193
Asn Ala Ile Asp Ser Glu Pro Lys Asp Val Ile Ala Asn Ser Asn Ala
    850                 855                 860

gtg tta atg gac ctg gac agt ggt gat gtt aag aga aga gta cat tta     3241
Val Leu Met Asp Leu Asp Ser Gly Asp Val Lys Arg Arg Val His Leu
865                 870                 875                 880

ttt gaa acc cag aga agg aca aaa gaa gaa gat cca ata att ccc ttt     3289
Phe Glu Thr Gln Arg Arg Thr Lys Glu Glu Asp Pro Ile Ile Pro Phe
                885                 890                 895

agt gat gga ccc atc atc tca aaa tgg ggt gcg att tcc aga tct tcc     3337
Ser Asp Gly Pro Ile Ile Ser Lys Trp Gly Ala Ile Ser Arg Ser Ser
            900                 905                 910

cgt aca ggt tac cat acc aca gat cct gtc cag gcc act gct tcc caa     3385
Arg Thr Gly Tyr His Thr Thr Asp Pro Val Gln Ala Thr Ala Ser Gln
        915                 920                 925

gga agt gcg act aag ccc atc agt gta tca gat tat gtc cct tat gtc     3433
Gly Ser Ala Thr Lys Pro Ile Ser Val Ser Asp Tyr Val Pro Tyr Val
    930                 935                 940

aat gct gtt gat tca agg tgg agt tca tat ggc aac gag gcc aca tca     3481
Asn Ala Val Asp Ser Arg Trp Ser Ser Tyr Gly Asn Glu Ala Thr Ser
945                 950                 955                 960

tca gca cac tat gtt gaa agg gac aga ttc att gtt act gat tta tct     3529
Ser Ala His Tyr Val Glu Arg Asp Arg Phe Ile Val Thr Asp Leu Ser
                965                 970                 975

ggt cat aga aag cat tcc agt act ggg gac ctt ttg agc ctt gaa ctt     3577
Gly His Arg Lys His Ser Ser Thr Gly Asp Leu Leu Ser Leu Glu Leu
            980                 985                 990

cag cag gcc aag agc aac tca tta  ctt ctt cag aga gag  gcc aat gct   3625
Gln Gln Ala Lys Ser Asn Ser Leu  Leu Leu Gln Arg Glu  Ala Asn Ala
        995                1000                1005

ttg gcc  atg caa cag aag tgg  aat tcc ctg gat gaa  ggc cgt cac      3670
Leu Ala  Met Gln Gln Lys Trp  Asn Ser Leu Asp Glu  Gly Arg His
    1010                1015                1020

ctt acc  tta aac ctt tta agc  aag gaa att gaa cta  aga aat gga      3715
Leu Thr  Leu Asn Leu Leu Ser  Lys Glu Ile Glu Leu  Arg Asn Gly
    1025                1030                1035

gag tta  cag agt gat tat aca  gaa gat gca aca gat  act aaa cct      3760
Glu Leu  Gln Ser Asp Tyr Thr  Glu Asp Ala Thr Asp  Thr Lys Pro
    1040                1045                1050

gat agg  gat atc gag tta gag  ctt tca gca ctt gat  act gat gaa      3805
Asp Arg  Asp Ile Glu Leu Glu  Leu Ser Ala Leu Asp  Thr Asp Glu
    1055                1060                1065

cct gat  gga caa agt gaa cca  att gaa gag atc ttg  gac ata cag      3850
```

```
Pro Asp  Gly Gln Ser Glu Pro  Ile Glu Glu Ile Leu  Asp Ile Gln
    1070                 1075                 1080

ctt ggt  atc agt tct caa aat  gat cag ttg cta aat  gga atg gca      3895
Leu Gly  Ile Ser Ser Gln Asn  Asp Gln Leu Leu Asn  Gly Met Ala
    1085                 1090                 1095

gtg gaa  aat ggg cat cca gta  cag cag cac caa aag  gag cca cca      3940
Val Glu  Asn Gly His Pro Val  Gln Gln His Gln Lys  Glu Pro Pro
    1100                 1105                 1110

aag cag  aag aaa cag agt tta  ggt gaa gac cat gtg  att ctg gag      3985
Lys Gln  Lys Lys Gln Ser Leu  Gly Glu Asp His Val  Ile Leu Glu
    1115                 1120                 1125

gag caa  aaa aca att ctg ccg  gta act tct tgc ttt  agc cag cca      4030
Glu Gln  Lys Thr Ile Leu Pro  Val Thr Ser Cys Phe  Ser Gln Pro
    1130                 1135                 1140

ctc cca  gtg tct att agc aat  gca agt tgc ctc ccc  atc acc aca      4075
Leu Pro  Val Ser Ile Ser Asn  Ala Ser Cys Leu Pro  Ile Thr Thr
    1145                 1150                 1155

tct gtc  agt gct ggc aac ctc  att ctg aaa act cat  gtt atg tct      4120
Ser Val  Ser Ala Gly Asn Leu  Ile Leu Lys Thr His  Val Met Ser
    1160                 1165                 1170

gaa gat  aaa aac gac ttt tta  aaa cct gtt gca aat  ggg aag atg      4165
Glu Asp  Lys Asn Asp Phe Leu  Lys Pro Val Ala Asn  Gly Lys Met
    1175                 1180                 1185

gtt aac  agc tgaaaggagg ttcatctttc aaatttgtga ccacaccatg          4214
Val Asn  Ser
    1190

gaagcattta cactagcttt ttatatatat aatatatatt atataatgta tatttttttt  4274

aaaaaaaaga tattactggg ggcatccatt tcctgtggac tctttgatac ttcaagccct  4334

cttgcattag cattatg                                               4351


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<213>  Homo sapiens

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Met Ala Val Gln Ala Ala Gln Trp Thr Glu Phe Leu Ser Cys Pro Ile
1               5                  10                  15


Cys Tyr Asn Glu Phe Asp Glu Asn Val His Lys Pro Ile Ser Leu Gly
            20                  25                  30
```

```
Cys Ser His Thr Val Cys Lys Thr Cys Leu Asn Lys Leu His Arg Lys
        35                  40                  45

Ala Cys Pro Phe Asp Gln Thr Ala Ile Asn Thr Asp Ile Asp Val Leu
    50                  55                  60

Pro Val Asn Phe Ala Leu Leu Gln Leu Val Gly Ala Gln Val Pro Asp
65                  70                  75                  80

His Gln Ser Ile Lys Leu Ser Asn Leu Gly Glu Asn Lys His Tyr Glu
                85                  90                  95

Val Ala Lys Lys Cys Val Glu Asp Leu Ala Leu Tyr Leu Lys Pro Leu
            100                 105                 110

Ser Gly Gly Lys Gly Val Ala Ser Leu Asn Gln Ser Ala Leu Ser Arg
        115                 120                 125

Pro Met Gln Arg Lys Leu Val Thr Leu Val Asn Cys Gln Leu Val Glu
    130                 135                 140

Glu Glu Gly Arg Val Arg Ala Met Arg Ala Ala Arg Ser Leu Gly Glu
145                 150                 155                 160

Arg Thr Val Thr Glu Leu Ile Leu Gln His Gln Asn Pro Gln Gln Leu
                165                 170                 175

Ser Ala Asn Leu Trp Ala Ala Val Arg Ala Arg Gly Cys Gln Phe Leu
            180                 185                 190

Gly Pro Ala Met Gln Glu Glu Ala Leu Lys Leu Val Leu Leu Ala Leu
        195                 200                 205

Glu Asp Gly Ser Ala Leu Ser Arg Lys Val Leu Val Leu Phe Val Val
    210                 215                 220

Gln Arg Leu Glu Pro Arg Phe Pro Gln Ala Ser Lys Thr Ser Ile Gly
225                 230                 235                 240

His Val Val Gln Leu Leu Tyr Arg Ala Ser Cys Phe Lys Val Thr Lys
                245                 250                 255

Arg Asp Glu Asp Ser Ser Leu Met Gln Leu Lys Glu Glu Phe Arg Ser
```

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            260                 265                 270

Tyr Glu Ala Leu Arg Arg Glu His Asp Ala Gln Ile Val His Ile Ala
        275                 280                 285

Met Glu Ala Gly Leu Arg Ile Ser Pro Glu Gln Trp Ser Ser Leu Leu
    290                 295                 300

Tyr Gly Asp Leu Ala His Lys Ser His Met Gln Ser Ile Ile Asp Lys
305                 310                 315                 320

Leu Gln Ser Pro Glu Ser Phe Ala Lys Ser Val Gln Glu Leu Thr Ile
                325                 330                 335

Val Leu Gln Arg Thr Gly Asp Pro Ala Asn Leu Asn Arg Leu Arg Pro
            340                 345                 350

His Leu Glu Leu Leu Ala Asn Ile Asp Pro Asn Pro Asp Ala Val Ser
        355                 360                 365

Pro Thr Trp Glu Gln Leu Glu Asn Ala Met Val Ala Val Lys Thr Val
    370                 375                 380

Val His Gly Leu Val Asp Phe Ile Gln Asn Tyr Ser Arg Lys Gly His
385                 390                 395                 400

Glu Thr Pro Gln Pro Gln Pro Asn Ser Lys Tyr Lys Thr Ser Met Cys
                405                 410                 415

Arg Asp Leu Arg Gln Gln Gly Gly Cys Pro Arg Gly Thr Asn Cys Thr
            420                 425                 430

Phe Ala His Ser Gln Glu Glu Leu Glu Lys Tyr Arg Leu Arg Asn Lys
        435                 440                 445

Lys Ile Asn Ala Thr Val Arg Thr Phe Pro Leu Leu Asn Lys Val Gly
    450                 455                 460

Val Asn Asn Thr Val Thr Thr Thr Ala Gly Asn Val Ile Ser Val Ile
465                 470                 475                 480

Gly Ser Thr Glu Thr Thr Gly Lys Ile Val Pro Ser Thr Asn Gly Ile
                485                 490                 495
```

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Ser Asn Ala Glu Asn Ser Val Ser Gln Leu Ile Ser Arg Ser Thr Asp
            500                 505                 510

Ser Thr Leu Arg Ala Leu Glu Thr Val Lys Lys Val Gly Lys Val Gly
        515                 520                 525

Ala Asn Gly Gln Asn Ala Ala Gly Pro Ser Ala Asp Ser Val Thr Glu
    530                 535                 540

Asn Lys Ile Gly Ser Pro Pro Lys Thr Pro Val Ser Asn Val Ala Ala
545                 550                 555                 560

Thr Ser Ala Gly Pro Ser Asn Val Gly Thr Glu Leu Asn Ser Val Pro
                565                 570                 575

Gln Lys Ser Ser Pro Phe Leu Thr Arg Val Pro Val Tyr Pro Pro His
            580                 585                 590

Ser Glu Asn Ile Gln Tyr Phe Gln Asp Pro Arg Thr Gln Ile Pro Phe
        595                 600                 605

Glu Val Pro Gln Tyr Pro Gln Thr Gly Tyr Tyr Pro Pro Pro Pro Thr
    610                 615                 620

Val Pro Ala Gly Val Ala Pro Cys Val Pro Arg Phe Val Arg Ser Asn
625                 630                 635                 640

Asn Val Pro Glu Ser Ser Leu Pro Pro Ala Ser Met Pro Tyr Ala Asp
                645                 650                 655

His Tyr Ser Thr Phe Ser Pro Arg Asp Arg Met Asn Ser Ser Pro Tyr
            660                 665                 670

Gln Pro Pro Pro Pro Gln Pro Tyr Gly Pro Val Pro Pro Val Pro Ser
        675                 680                 685

Gly Met Tyr Ala Pro Val Tyr Asp Ser Arg Arg Ile Trp Arg Pro Pro
    690                 695                 700

Met Tyr Gln Arg Asp Asp Ile Ile Arg Ser Asn Ser Leu Pro Pro Met
705                 710                 715                 720
```

```
Asp Val Met His Ser Ser Val Tyr Gln Thr Ser Leu Arg Glu Arg Tyr
                725                 730                 735

Asn Ser Leu Asp Gly Tyr Tyr Ser Val Ala Cys Gln Pro Pro Ser Glu
            740                 745                 750

Pro Arg Thr Thr Val Pro Leu Pro Arg Glu Pro Cys Gly His Leu Lys
        755                 760                 765

Thr Ser Cys Glu Glu Gln Ile Arg Arg Lys Pro Asp Gln Trp Ala Gln
    770                 775                 780

Tyr His Thr Gln Lys Ala Pro Leu Val Ser Ser Thr Leu Pro Val Ala
785                 790                 795                 800

Thr Gln Ser Pro Thr Pro Pro Ser Pro Leu Phe Ser Val Asp Phe Arg
                805                 810                 815

Ala Asp Phe Ser Glu Ser Val Ser Gly Thr Lys Phe Glu Glu Asp His
            820                 825                 830

Leu Ser His Tyr Ser Pro Trp Ser Cys Gly Thr Ile Gly Ser Cys Ile
        835                 840                 845

Asn Ala Ile Asp Ser Glu Pro Lys Asp Val Ile Ala Asn Ser Asn Ala
    850                 855                 860

Val Leu Met Asp Leu Asp Ser Gly Asp Val Lys Arg Arg Val His Leu
865                 870                 875                 880

Phe Glu Thr Gln Arg Arg Thr Lys Glu Glu Asp Pro Ile Ile Pro Phe
                885                 890                 895

Ser Asp Gly Pro Ile Ile Ser Lys Trp Gly Ala Ile Ser Arg Ser Ser
            900                 905                 910

Arg Thr Gly Tyr His Thr Thr Asp Pro Val Gln Ala Thr Ala Ser Gln
        915                 920                 925

Gly Ser Ala Thr Lys Pro Ile Ser Val Ser Asp Tyr Val Pro Tyr Val
    930                 935                 940
```

```
Asn Ala Val Asp Ser Arg Trp Ser Ser Tyr Gly Asn Glu Ala Thr Ser
945                 950                 955                 960

Ser Ala His Tyr Val Glu Arg Asp Arg Phe Ile Val Thr Asp Leu Ser
                965                 970                 975

Gly His Arg Lys His Ser Ser Thr Gly Asp Leu Leu Ser Leu Glu Leu
            980                 985                 990

Gln Gln Ala Lys Ser Asn Ser Leu  Leu Leu Gln Arg Glu  Ala Asn Ala
        995                 1000                1005

Leu Ala  Met Gln Gln Lys Trp  Asn Ser Leu Asp Glu  Gly Arg His
    1010                1015                1020

Leu Thr  Leu Asn Leu Leu Ser  Lys Glu Ile Glu Leu  Arg Asn Gly
    1025                1030                1035

Glu Leu  Gln Ser Asp Tyr Thr  Glu Asp Ala Thr Asp  Thr Lys Pro
    1040                1045                1050

Asp Arg  Asp Ile Glu Leu Glu  Leu Ser Ala Leu Asp  Thr Asp Glu
    1055                1060                1065

Pro Asp  Gly Gln Ser Glu Pro  Ile Glu Glu Ile Leu  Asp Ile Gln
    1070                1075                1080

Leu Gly  Ile Ser Ser Gln Asn  Asp Gln Leu Leu Asn  Gly Met Ala
    1085                1090                1095

Val Glu  Asn Gly His Pro Val  Gln Gln His Gln Lys  Glu Pro Pro
    1100                1105                1110

Lys Gln  Lys Lys Gln Ser Leu  Gly Glu Asp His Val  Ile Leu Glu
    1115                1120                1125

Glu Gln  Lys Thr Ile Leu Pro  Val Thr Ser Cys Phe  Ser Gln Pro
    1130                1135                1140

Leu Pro  Val Ser Ile Ser Asn  Ala Ser Cys Leu Pro  Ile Thr Thr
    1145                1150                1155

Ser Val  Ser Ala Gly Asn Leu  Ile Leu Lys Thr His  Val Met Ser
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1160 1165 1170

Glu Asp Lys Asn Asp Phe Leu Lys Pro Val Ala Asn Gly Lys Met
1175 1180 1185

Val Asn Ser
1190

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<220>
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acccgagcat ggatcckcca cmatgsctgt gcaggcagc 39

<210> 6
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<212> DNA
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<220>
<223> PCR primer 2 for cloning DNA-R

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ggtatctaga tccatggtgt ggtcac 26

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<400> 7

Met Ala Thr Leu Val Val Asn Lys Leu Gly Ala Gly Val Asp Ser Gly
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Arg Gln Gly Ser Arg Gly Thr Ala Val Val Lys Val Leu Glu Cys Gly
20 25 30

Val Cys Glu Asp Val Phe Ser Leu Gln Gly Asp Lys Val Pro Arg Leu
35 40 45

Leu Leu Cys Gly His Thr Val Cys His Asp Cys Leu Thr Arg Leu Pro
50 55 60

Leu His Gly Arg Ala Ile Arg Cys Pro Phe Asp Arg Gln Val Thr Asp
65 70 75 80

```
Leu Gly Asp Ser Gly Val Trp Gly Leu Lys Lys Asn Phe Ala Leu Leu
                85                  90                  95

Glu Leu Leu Glu Arg Leu Gln Asn Gly Pro Ile Gly Gln Tyr Gly Ala
            100                 105                 110

Ala Glu Glu Ser Ile Gly Ile Ser Gly Glu Ser Ile Ile Arg Cys Asp
        115                 120                 125

Glu Asp Glu Ala His Leu Ala Ser Val Tyr Cys Thr Val Cys Ala Thr
    130                 135                 140

His Leu Cys Ser Glu Cys Ser Gln Val Thr His Ser Thr Lys Thr Leu
145                 150                 155                 160

Ala Lys His Arg Arg Val Pro Leu Ala Asp Lys Pro His Glu Lys Thr
                165                 170                 175

Met Cys Ser Gln His Gln Val His Ala Ile Glu Phe Val Cys Leu Glu
            180                 185                 190

Glu Gly Cys Gln Thr Ser Pro Leu Met Cys Cys Val Cys Lys Glu Tyr
        195                 200                 205

Gly Lys His Gln Gly His Lys His Ser Val Leu Glu Pro Glu Ala Asn
    210                 215                 220

Gln Ile Arg Ala Ser Ile Leu Asp Met Ala His Cys Ile Arg Thr Phe
225                 230                 235                 240

Thr Glu Glu Ile Ser Asp Tyr Ser Arg Lys Leu Val Gly Ile Val Gln
                245                 250                 255

His Ile Glu Gly Gly Glu Gln Ile Val Glu Asp Gly Ile Gly Met Ala
            260                 265                 270

His Thr Glu His Val Pro Gly Thr Ala Glu Asn Ala Arg Ser Cys Ile
        275                 280                 285

Arg Ala Tyr Phe Tyr Asp Leu His Glu Thr Leu Cys Arg Gln Glu Glu
    290                 295                 300

Met Ala Leu Ser Val Val Asp Ala His Val Arg Glu Lys Leu Ile Trp
305                 310                 315                 320

Leu Arg Gln Gln Gln Glu Asp Met Thr Ile Leu Leu Ser Glu Val Ser
                325                 330                 335

Ala Ala Cys Leu His Cys Glu Lys Thr Leu Gln Gln Asp Asp Cys Arg
            340                 345                 350

Val Val Leu Ala Lys Gln Glu Ile Thr Arg Leu Leu Thr Glu Leu Gln
        355                 360                 365

Lys Gln Gln Gln Gln Phe Thr Glu Val Ala Asp His Ile Gln Leu Asp
    370                 375                 380
```

```
Ala Ser Ile Pro Val Thr Phe Thr Lys Asp Asn Arg Val His Ile Gly
385                 390                 395                 400

Pro Lys Met Glu Ile Arg Val Val Thr Leu Gly Leu Asp Gly Ala Gly
                405                 410                 415

Lys Thr Thr Ile Leu Phe Lys Leu Lys Gln Asp Glu Phe Met Gln Pro
            420                 425                 430

Ile Pro Thr Ile Gly Phe Asn Val Glu Thr Val Glu Tyr Lys Asn Leu
        435                 440                 445

Lys Phe Thr Ile Trp Asp Val Gly Gly Lys His Lys Leu Arg Pro Leu
    450                 455                 460

Trp Lys His Tyr Tyr Leu Asn Thr Gln Ala Val Val Phe Val Val Asp
465                 470                 475                 480

Ser Ser His Arg Asp Arg Ile Ser Glu Ala His Ser Glu Leu Ala Lys
                485                 490                 495

Leu Leu Thr Glu Lys Glu Leu Arg Asp Ala Leu Leu Leu Ile Phe Ala
            500                 505                 510

Asn Lys Gln Asp Val Ala Gly Ala Leu Ser Val Glu Glu Ile Thr Glu
        515                 520                 525

Leu Leu Ser Leu His Lys Leu Cys Cys Gly Arg Ser Trp Tyr Ile Gln
    530                 535                 540

Gly Cys Asp Ala Arg Ser Gly Met Gly Leu Tyr Glu Gly Leu Asp Trp
545                 550                 555                 560

Leu Ser Arg Gln Leu Val Ala Ala Gly Val Leu Asp Val Ala
                565                 570
```

<210> 8
<211> 317
<212> PRT
<213> Homo sapiens

<400> 8

```
Met Gly Tyr Asp Val Thr Arg Phe Gln Gly Asp Val Asp Glu Asp Leu
1               5                   10                  15

Ile Cys Pro Ile Cys Ser Gly Val Leu Glu Glu Pro Val Gln Ala Pro
            20                  25                  30

His Cys Glu His Ala Phe Cys Asn Ala Cys Ile Thr Gln Trp Phe Ser
        35                  40                  45

Gln Gln Gln Thr Cys Pro Val Asp Arg Ser Val Val Thr Val Ala His
    50                  55                  60

Leu Arg Pro Val Pro Arg Ile Met Arg Asn Met Leu Ser Lys Leu Gln
65                  70                  75                  80
```

```
Ile Ala Cys Asp Asn Ala Val Phe Gly Cys Ser Ala Val Val Arg Leu
                85                  90                  95

Asp Asn Leu Met Ser His Leu Ser Asp Cys Glu His Asn Pro Lys Arg
            100                 105                 110

Pro Val Thr Cys Glu Gln Gly Cys Gly Leu Glu Met Pro Lys Asp Glu
        115                 120                 125

Leu Pro Asn His Asn Cys Ile Lys His Leu Arg Ser Val Val Gln Gln
    130                 135                 140

Gln Gln Thr Arg Ile Ala Glu Leu Glu Lys Thr Ser Ala Glu His Lys
145                 150                 155                 160

His Gln Leu Ala Glu Gln Lys Arg Asp Ile Gln Leu Leu Lys Ala Tyr
                165                 170                 175

Met Arg Ala Ile Arg Ser Val Asn Pro Asn Leu Gln Asn Leu Glu Glu
            180                 185                 190

Thr Ile Glu Tyr Asn Glu Ile Leu Glu Trp Val Asn Ser Leu Gln Pro
        195                 200                 205

Ala Arg Val Thr Arg Trp Gly Gly Met Ile Ser Thr Pro Asp Ala Val
    210                 215                 220

Leu Gln Ala Val Ile Lys Arg Ser Leu Val Glu Ser Gly Cys Pro Ala
225                 230                 235                 240

Ser Ile Val Asn Glu Leu Ile Glu Asn Ala His Glu Arg Ser Trp Pro
                245                 250                 255

Gln Gly Leu Ala Thr Leu Glu Thr Arg Gln Met Asn Arg Arg Tyr Tyr
            260                 265                 270

Glu Asn Tyr Val Ala Lys Arg Ile Pro Gly Lys Gln Ala Val Val Val
        275                 280                 285

Met Ala Cys Glu Asn Gln His Met Gly Asp Asp Met Val Gln Glu Pro
    290                 295                 300

Gly Leu Val Met Ile Phe Ala His Gly Val Glu Glu Ile
305                 310                 315
```

<210> 9
<211> 202
<212> PRT
<213> Caenorhabditis elegans

<400> 9

```
Met Arg Met Met Glu Ala Glu Ile Lys Asp Gln Arg Asn Asn Leu Gln
1               5                   10                  15

Ala Leu Lys Asn Ser Gln Arg Leu Ser Val Arg Gly Ser Ile Gln Ser
```

20 25 30

Asn Met Ser Ser Arg Thr Asp Gly Ile Leu Gln Arg Arg Leu Asp Glu
35 40 45

Thr Glu Arg Lys Leu Ala Lys Thr Ser Ala Glu Leu Lys Ala Lys Asp
50 55 60

Glu Lys Leu Lys Lys Glu Thr Ala Ser Leu Glu Ala Ser Arg Glu Ala
65 70 75 80

His Arg Leu Leu Gln Glu Glu Ser Asn Lys Ser Lys Val Ser Val Met
85 90 95

Arg Leu Thr Phe Lys Leu Asn Arg Ile Thr His Glu Ser Val Lys Glu
100 105 110

Gln Ala Val Leu Lys Lys Lys Leu Leu Asp Cys Glu Thr Arg Leu Ala
115 120 125

Thr Tyr Ser Glu Cys Leu Val Cys Tyr Gln Lys Phe Asp Glu Asn Thr
130 135 140

Arg Ile Pro Arg Val Met Asp Cys Gly His Thr Leu Cys Asp Phe Cys
145 150 155 160

Ile Asn Gln Ile Val Lys Met Ala Gly Cys Tyr Ser Ala Thr Cys Pro
165 170 175

Phe Asp Arg Val Arg Ile Phe Gly Phe Gly Lys Ser Arg Arg Leu Glu
180 185 190

Asp Arg Pro Cys Asn Arg Phe Ile Met Lys
195 200

<210> 10
<211> 218
<212> PRT
<213> Caenorhabditis elegans

<400> 10

Met Ala Pro Ile Arg Arg Ser Ser Arg Leu Ala Glu Arg Tyr Asp Ala
1 5 10 15

Ile Glu Ser Lys Lys Arg Ser Leu Lys Arg Leu Glu Glu Gln Ile Lys
20 25 30

Ala Glu Glu Glu Gln Phe Ser Asp Lys Met Lys Gln Leu Glu Asp Glu
35 40 45

Ile Lys Ile Lys Glu Gln Val Ile Thr Met Phe Lys Arg Lys Thr Val
50 55 60

Arg Arg Glu Trp Met Arg Asn Ser Arg Gln Ala Thr Thr Asn Ile Asn
65 70 75 80

```
Ile Ala Gln Ile Glu Ser Leu Lys Leu Gln Leu Glu Glu Gly Glu Lys
                85                  90                  95

Asp Ile Ala Glu Ala Glu Lys Gln Ala Glu Pro Thr Thr Pro Gln Gln
            100                 105                 110

Glu Ala Glu Leu Ser Glu Thr Phe Lys Gln Met Val Arg Asp Arg Met
        115                 120                 125

Lys Val Lys Asp Val Asp Glu Lys Leu Leu Gln Gln Tyr Met Lys Lys
    130                 135                 140

Glu Asn Val Glu Phe Glu Trp Arg Ser Cys Phe Ile Cys Thr Met Glu
145                 150                 155                 160

Tyr Ser Arg Thr Asp Lys Asn Leu His Pro Ile Ile Leu Asn Cys Gly
                165                 170                 175

His Asn Leu Cys Arg Ser Cys Ile Asn Lys Leu Thr Gly Asn Gly Ile
            180                 185                 190

Val Lys Cys Pro Phe Asp Arg Leu Asp Thr Arg Val Arg Val Thr Gly
        195                 200                 205

Leu Pro Arg Asn Leu Ala Leu Ile Asn Leu
    210                 215
```

<210> 11
<211> 1048
<212> PRT
<213> Caenorhabditis elegans

<400> 11

```
Met Ala Pro Thr Gly Gln Gly Gly Gln Trp Gln Glu Val Leu Cys Cys
1               5                  10                  15

Ser Ile Cys Asn Arg His Phe Asn Glu Thr Phe Leu Pro Val Ser Leu
            20                  25                  30

Ile Cys Gly His Val Ile Cys Arg Lys Cys Ala Glu Lys Pro Glu Asn
        35                  40                  45

Gln Thr Lys Pro Cys Pro His Asp Asp Trp Lys Thr Thr His Ser Pro
    50                  55                  60

Ser Glu Tyr Pro Asn Asn Val Ala Leu Leu Ser Val Ile Phe Pro Arg
65                  70                  75                  80

Lys Gln Cys Met Thr Leu Ser Gly Ala Val Ser Glu Ala Glu Lys Arg
                85                  90                  95

Val Asp Gln Leu Ser Ile Gln Ile Ala Lys Phe Phe Arg Glu Ala Asp
            100                 105                 110

Ser Glu Arg Gly Gly Thr Val Ser Ser Arg Glu Ile Ser Arg Thr Leu
        115                 120                 125
```

```
Gln Arg Lys Val Leu Ala Leu Leu Cys Tyr Gln Trp Arg Glu Val Asp
    130                 135                 140

Gly Arg Leu Lys Thr Leu Lys Met Cys Arg Gly Ile Ser Glu Arg Val
145                 150                 155                 160

Met Ile Glu Ile Ile Leu Ser Ile Gln Ser Asn Thr His Val Ser Ser
                165                 170                 175

Gln Leu Trp Ser Ala Val Arg Ala Arg Gly Cys Gln Phe Leu Gly Pro
            180                 185                 190

Ala Met Gln Asp Asp Val Leu Arg Leu Ile Leu Met Thr Leu Glu Thr
        195                 200                 205

Gly Glu Cys Ile Ala Arg Lys Asn Leu Val Met Tyr Val Val Gln Thr
    210                 215                 220

Leu Ala Ser Asp Tyr Pro Gln Val Ser Lys Thr Cys Val Gly His Val
225                 230                 235                 240

Val Gln Leu Leu Tyr Arg Ala Ser Cys Phe Asn Val Leu Lys Arg Asp
                245                 250                 255

Gly Glu Ser Ser Leu Met Gln Leu Lys Glu Glu Phe Arg Thr Tyr Glu
            260                 265                 270

Ser Leu Arg Arg Glu His Asp Ser Gln Ile Val Gln Ile Ala Phe Glu
        275                 280                 285

Ser Gly Leu Arg Ile Gly Pro Asp Gln Trp Ser Ala Leu Leu Tyr Ala
    290                 295                 300

Asp Gln Ser His Arg Ser His Met Gln Ser Ile Ile Asp Lys Leu Gln
305                 310                 315                 320

Ser Lys Asn Ser Tyr Gln Gln Gly Val Glu Glu Leu Arg Ala Leu Ala
                325                 330                 335

Gly Ser Gln Thr Ser Met Leu Val Pro Ala Tyr Arg Tyr Phe Leu Thr
            340                 345                 350

Gln Val Ile Pro Cys Leu Glu Phe Phe Ala Gly Ile Glu His Glu Asp
        355                 360                 365

Thr Ser Met Arg Met Ile Gly Asp Ala Leu His Gln Ile Arg Ile Leu
    370                 375                 380

Leu Lys Leu His Cys Ser Gln Asp Asp Leu Arg Lys Met Pro Lys Glu
385                 390                 395                 400

Glu Arg Arg Gly Val Ile Leu Gln Ala Glu Val Pro Gly Gly Met Gly
                405                 410                 415

Gly Gly Pro Gly Gly Ser Gly Gly Ala Glu Ala Gly Arg Ile Gly Gly
            420                 425                 430
```

```
Leu His Pro Leu Tyr Ser Gln Ile Asp Glu Thr Gly Arg Ser Ile Ser
        435                 440                 445

Arg Thr Asn Pro Lys Asp Asn Ser His Asn Ser Pro Gln Thr Pro Pro
    450                 455                 460

Lys Gln Pro Arg Gln Lys Arg Tyr Gln Met Gly Ile Pro Pro Asn Arg
465                 470                 475                 480

Met Gly Tyr Ser Ser Asp Ala Pro Pro Phe Ile Pro Ser His Gln Gln
                485                 490                 495

Gln Pro Pro Pro Gln Phe Phe Asn Ser Gln His Leu Pro Gln Arg Phe
            500                 505                 510

Arg Gly Gly Arg Gln Arg Gly Ala Pro Pro Pro Pro Pro Pro Gln Pro
        515                 520                 525

Met Pro Met Leu Ile Gly Tyr Asp Met Pro Gly Ala Pro Met Met Gln
    530                 535                 540

Ala Thr Glu Val Leu Thr Ala Asp Gly Gln Met Val Asn Gly Thr Pro
545                 550                 555                 560

Gln Arg Val Val Ile Met Gln Ser Pro Thr His Leu Pro Gly Gly Pro
                565                 570                 575

Val Val Met Ile Pro Gln Gln Gln Met Val Pro Pro Pro Gln Ser Met
            580                 585                 590

Thr Pro Val Gly Gly Pro Met Gly Pro Met Gly Pro Met Thr Pro Ser
        595                 600                 605

Ile Pro Val Gln Val Pro Pro Asn Thr Met Trp Thr Ala Thr Ser Pro
    610                 615                 620

Thr Gly Ser Val Ile Tyr Pro Ala Ala Ser Pro Pro Gly Gln Pro Pro
625                 630                 635                 640

His Thr Ile Trp Ile Gln Ser Ile Gly Val Phe Lys Arg Lys Ser Asn
                645                 650                 655

Phe Leu Lys Ile Val Arg Lys Ile Ser Phe Phe Leu Asn Phe Tyr Asp
            660                 665                 670

Phe Phe Leu Ile Leu Arg Lys Leu Lys Lys Glu Lys Lys Gly Ala Asp
        675                 680                 685

Ile Glu Phe Phe Glu Lys Ile Lys Ser Thr Asp Phe Lys Lys Tyr Pro
    690                 695                 700

Ser Ser Phe Ser Arg Thr Asp Gly Asn Met Phe Pro Met Phe Asp Arg
705                 710                 715                 720

Gly Ser Gly Gly Met Val Trp Gly Pro Gly Thr Met Leu Arg Glu Ser
                725                 730                 735
```

```
Gly Ala Asp Ala Glu Gln Leu Leu Ala Lys Arg Tyr Glu Ile Leu Lys
            740                 745                 750

Arg Leu Gln Pro Ser Glu Asp Asp Asp Pro Glu Asp Gly Gly Ile
        755                 760                 765

Gly His Val Ser Tyr Thr Val Ala Ser Ser Val Leu Asp Asp Arg Met
    770                 775                 780

Asp His His Pro Leu Thr Met Ile Pro Val Pro Thr Ile Asp Leu Pro
785                 790                 795                 800

Ala Ile Pro Ile Ser Phe Ala Asn Met Pro Thr Glu Glu Thr Met Thr
                805                 810                 815

Met Ile Gly Glu Met Val Gln Asn Arg Pro Arg Ala Pro Ser Leu Thr
            820                 825                 830

Ala Pro Ser Ser Asn Gln Pro Met Asn Val Asn Ala Ser Ala Ser Ala
        835                 840                 845

Thr Val Gln Ala Glu Cys Glu Asn Arg Lys Ile Leu Asp Phe Pro Leu
    850                 855                 860

Lys Tyr Arg Lys Met Thr Leu Met Phe Glu Lys Val Ser Thr Cys Phe
865                 870                 875                 880

His Val Thr Leu Leu Lys Asp Tyr Met Val Phe Tyr Val Leu Asn Thr
                885                 890                 895

Leu Asn Phe Ala Ser Arg Trp Pro Arg Arg Arg Arg Ala Ala Thr Ile
            900                 905                 910

Pro Gln Pro Val Ile Pro Met Val Gln Val Pro Val Gln Val Pro Ile
        915                 920                 925

Val Pro Ala Glu Asn Phe Asn Pro Asn Val Pro Pro Pro Pro Pro Pro
    930                 935                 940

Pro Gln Gly Gln Pro Met Leu Val Asp Ser Ala Ile Gly Leu Leu Thr
945                 950                 955                 960

Pro Ile Arg Pro Ile Leu Val Ala His Pro Gln Asn Val Val Ser Asn
                965                 970                 975

Ser Leu Asp Lys Ile Val Asp Val Lys Glu Arg Ile Ser Glu Ala Gln
            980                 985                 990

Gly Asn Ala Ser Glu Ala Glu Asn  Ala His Leu Arg Met  Glu Leu Arg
        995                 1000                1005

Met Ala  Glu Ser Gln Met Ala  His Leu Asp Pro Tyr  Thr Lys Asn
    1010                1015                1020

Asn Cys  Leu Leu Arg Ala Leu  Gln Gln Val Asp Met  Glu Leu Gln
    1025                1030                1035
```

```
Gln Leu  His Leu Asn Pro Thr  Val Glu Gly
    1040                1045

<210>  12
<211>  1999
<212>  DNA
<213>  Homo sapiens

<220>
<221>  CDS
<222>  (86)..(1498)

<400>  12
gccgggagcg ccgctccagc gaggcgcggg ctgtggggcc gccgcgtgcc tggccccgct     60

cgcccgtgcc ggccgctcgc ccgcc atg cct ggc ttc gac tac aag ttc ctg      112
                           Met Pro Gly Phe Asp Tyr Lys Phe Leu
                           1               5

gag aag ccc aag cga cgg ctg ctg tgc cca ctg tgc ggg aag ccc atg      160
Glu Lys Pro Lys Arg Arg Leu Leu Cys Pro Leu Cys Gly Lys Pro Met
10                  15                  20                  25

cgc gag cct gtg cag gtt tcc acc tgc ggc cac cgt ttc tgc gat acc      208
Arg Glu Pro Val Gln Val Ser Thr Cys Gly His Arg Phe Cys Asp Thr
                30                  35                  40

tgc ctg cag gag ttc ctc agt gaa gga gtc ttc aag tgc cct gag gac      256
Cys Leu Gln Glu Phe Leu Ser Glu Gly Val Phe Lys Cys Pro Glu Asp
            45                  50                  55

cag ctt cct ctg gac tat gcc aag atc tac cca gac ccg gag ctg gaa      304
Gln Leu Pro Leu Asp Tyr Ala Lys Ile Tyr Pro Asp Pro Glu Leu Glu
        60                  65                  70

gta caa gta ttg ggc ctg cct atc cgc tgc atc cac agt gag gag ggc      352
Val Gln Val Leu Gly Leu Pro Ile Arg Cys Ile His Ser Glu Glu Gly
    75                  80                  85

tgc cgc tgg agt ggg cca cta cgt cat cta cag ggc cac ctg aat acc      400
Cys Arg Trp Ser Gly Pro Leu Arg His Leu Gln Gly His Leu Asn Thr
90                  95                  100                 105

tgc agc ttc aat gtc att ccc tgc cct aat cgc tgc ccc atg aag ctg      448
Cys Ser Phe Asn Val Ile Pro Cys Pro Asn Arg Cys Pro Met Lys Leu
                110                 115                 120

agc cgc cgt gat cta cct gca cac ttg cag cat gac tgc ccc aag cgg      496
Ser Arg Arg Asp Leu Pro Ala His Leu Gln His Asp Cys Pro Lys Arg
            125                 130                 135

cgc ctc aag tgc gag ttt tgt ggc tgt gac ttc agt ggg gag gcc tat      544
Arg Leu Lys Cys Glu Phe Cys Gly Cys Asp Phe Ser Gly Glu Ala Tyr
        140                 145                 150

gag agc cat gag ggt atg tgc ccc cag gag agt gtc tac tgt gag aat      592
```

```
Glu Ser His Glu Gly Met Cys Pro Gln Glu Ser Val Tyr Cys Glu Asn
    155                 160                 165

aag tgt ggt gcc cgc atg atg cgg ggg ctg ctg gcc cag cat gcc acc      640
Lys Cys Gly Ala Arg Met Met Arg Gly Leu Leu Ala Gln His Ala Thr
170                 175                 180                 185

tct gag tgc ccc aag cgc act cag ccc tgc acc tac tgc act aag gag      688
Ser Glu Cys Pro Lys Arg Thr Gln Pro Cys Thr Tyr Cys Thr Lys Glu
                190                 195                 200

ttc gtc ttt gac acc atc cag agc cac cag tac cag tgc cca agg ctg      736
Phe Val Phe Asp Thr Ile Gln Ser His Gln Tyr Gln Cys Pro Arg Leu
            205                 210                 215

cct gtt gcc tgc ccc aac caa tgt ggt gtg ggc act gtg gct cgg gag      784
Pro Val Ala Cys Pro Asn Gln Cys Gly Val Gly Thr Val Ala Arg Glu
        220                 225                 230

gac ctg cca ggc cat ctg aag gac agc tgt aac acc gcc ctg gtg ctc      832
Asp Leu Pro Gly His Leu Lys Asp Ser Cys Asn Thr Ala Leu Val Leu
    235                 240                 245

tgc cca ttc aaa gac tcc ggc tgc aag cac agg tgc cct aag ctg gca      880
Cys Pro Phe Lys Asp Ser Gly Cys Lys His Arg Cys Pro Lys Leu Ala
250                 255                 260                 265

atg gca cgg cat gtg gag gag agt gtg aag cca cat ctg gcc atg atg      928
Met Ala Arg His Val Glu Glu Ser Val Lys Pro His Leu Ala Met Met
                270                 275                 280

tgt gcc ctg gtg agc cgg caa cgg cag gag ctg cag gag ctt cgg cga      976
Cys Ala Leu Val Ser Arg Gln Arg Gln Glu Leu Gln Glu Leu Arg Arg
            285                 290                 295

gag ctg gag gag cta tca gtg ggc agt gat ggc gtg ctc atc tgg aag     1024
Glu Leu Glu Glu Leu Ser Val Gly Ser Asp Gly Val Leu Ile Trp Lys
        300                 305                 310

att ggc agc tat gga cgg cgg cta cag gag gcc aag gcc aag ccc aac     1072
Ile Gly Ser Tyr Gly Arg Arg Leu Gln Glu Ala Lys Ala Lys Pro Asn
    315                 320                 325

ctt gag tgc ttc agc cca gcc ttc tac aca cat aag tat ggt tac aag     1120
Leu Glu Cys Phe Ser Pro Ala Phe Tyr Thr His Lys Tyr Gly Tyr Lys
330                 335                 340                 345

ctg cag gtg tct gca ttc ctc aat ggc aat ggc agt ggt gag ggc aca     1168
Leu Gln Val Ser Ala Phe Leu Asn Gly Asn Gly Ser Gly Glu Gly Thr
                350                 355                 360

cac ctc tca ctg tac att cgt gtg ctg cct ggt gcc ttt gac aat ctc     1216
His Leu Ser Leu Tyr Ile Arg Val Leu Pro Gly Ala Phe Asp Asn Leu
            365                 370                 375

ctt gag tgg ccc ttt gcc cgc cgt gtc acc ttc tcc ctg ctg gat cag     1264
Leu Glu Trp Pro Phe Ala Arg Arg Val Thr Phe Ser Leu Leu Asp Gln
```

```
        380                 385                 390

agc gac cct ggg ctg gct aaa cca cag cac gtc act gag acc ttc cac     1312
Ser Asp Pro Gly Leu Ala Lys Pro Gln His Val Thr Glu Thr Phe His
    395                 400                 405

ccc gac cca aac tgg aag aat ttc cag aag cca ggc acg tgg cgg ggc     1360
Pro Asp Pro Asn Trp Lys Asn Phe Gln Lys Pro Gly Thr Trp Arg Gly
410                 415                 420                 425

tcc ctg gat gag agt tct ctg ggc ttt ggt tat ccc aag ttc atc tcc     1408
Ser Leu Asp Glu Ser Ser Leu Gly Phe Gly Tyr Pro Lys Phe Ile Ser
                430                 435                 440

cac cag gac att cga aag cga aac tat gtg cgg gat gat gca gtc ttc     1456
His Gln Asp Ile Arg Lys Arg Asn Tyr Val Arg Asp Asp Ala Val Phe
            445                 450                 455

atc cgt gct gct gtt gaa ctg ccc cgg aag atc ctc agc tga             1498
Ile Arg Ala Ala Val Glu Leu Pro Arg Lys Ile Leu Ser
        460                 465                 470

gtgcaggtgg ggttcgaggg gaaaggacga tggggcatga cctcagtcag gcactggctg   1558

aacttggaga gggggccgga cccccgtcag ctgcttctgc tgcctaggtt ctgttacccc   1618

atcctccctc ccccagccac caccctcagg tgcctccaat tggtgcttca gccctggccc   1678

ctgtggggaa caggtcttgg ggtcatgaag ggctggaaac aagtgacccc agggcctgtc   1738

tcccttcttg ggtagggcag acatgccttg gtgccggtca cactctacac ggactgaggt   1798

gcctgctcag gtgctatgtc ccaagagcca taaggggtg ggaattgggg agggagaaag   1858

ggtagttcaa agagtctgtc ttgagatctg atttttccc cctttaccta gctgtgcccc   1918

ctctggttat ttatttcctt agtgccagga gggcacagca ggggagccct gatttttaat   1978

aaatccggaa ttgtatttat t                                             1999
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<210> 13
<211> 470
<212> PRT
<213> Homo sapiens

<400> 13

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Met Pro Gly Phe Asp Tyr Lys Phe Leu Glu Lys Pro Lys Arg Arg Leu
1               5                   10                  15

Leu Cys Pro Leu Cys Gly Lys Pro Met Arg Glu Pro Val Gln Val Ser
            20                  25                  30

Thr Cys Gly His Arg Phe Cys Asp Thr Cys Leu Gln Glu Phe Leu Ser
```

```
        35                  40                  45

Glu Gly Val Phe Lys Cys Pro Glu Asp Gln Leu Pro Leu Asp Tyr Ala
    50                  55                  60

Lys Ile Tyr Pro Asp Pro Glu Leu Glu Val Gln Val Leu Gly Leu Pro
65                  70                  75                  80

Ile Arg Cys Ile His Ser Glu Glu Gly Cys Arg Trp Ser Gly Pro Leu
                85                  90                  95

Arg His Leu Gln Gly His Leu Asn Thr Cys Ser Phe Asn Val Ile Pro
            100                 105                 110

Cys Pro Asn Arg Cys Pro Met Lys Leu Ser Arg Arg Asp Leu Pro Ala
        115                 120                 125

His Leu Gln His Asp Cys Pro Lys Arg Arg Leu Lys Cys Glu Phe Cys
    130                 135                 140

Gly Cys Asp Phe Ser Gly Glu Ala Tyr Glu Ser His Glu Gly Met Cys
145                 150                 155                 160

Pro Gln Glu Ser Val Tyr Cys Glu Asn Lys Cys Gly Ala Arg Met Met
                165                 170                 175

Arg Gly Leu Leu Ala Gln His Ala Thr Ser Glu Cys Pro Lys Arg Thr
            180                 185                 190

Gln Pro Cys Thr Tyr Cys Thr Lys Glu Phe Val Phe Asp Thr Ile Gln
        195                 200                 205

Ser His Gln Tyr Gln Cys Pro Arg Leu Pro Val Ala Cys Pro Asn Gln
    210                 215                 220

Cys Gly Val Gly Thr Val Ala Arg Glu Asp Leu Pro Gly His Leu Lys
225                 230                 235                 240

Asp Ser Cys Asn Thr Ala Leu Val Leu Cys Pro Phe Lys Asp Ser Gly
                245                 250                 255

Cys Lys His Arg Cys Pro Lys Leu Ala Met Ala Arg His Val Glu Glu
            260                 265                 270
```

Ser Val Lys Pro His Leu Ala Met Met Cys Ala Leu Val Ser Arg Gln
275 280 285

Arg Gln Glu Leu Gln Glu Leu Arg Arg Glu Leu Glu Glu Leu Ser Val
290 295 300

Gly Ser Asp Gly Val Leu Ile Trp Lys Ile Gly Ser Tyr Gly Arg Arg
305 310 315 320

Leu Gln Glu Ala Lys Ala Lys Pro Asn Leu Glu Cys Phe Ser Pro Ala
325 330 335

Phe Tyr Thr His Lys Tyr Gly Tyr Lys Leu Gln Val Ser Ala Phe Leu
340 345 350

Asn Gly Asn Gly Ser Gly Glu Gly Thr His Leu Ser Leu Tyr Ile Arg
355 360 365

Val Leu Pro Gly Ala Phe Asp Asn Leu Leu Glu Trp Pro Phe Ala Arg
370 375 380

Arg Val Thr Phe Ser Leu Leu Asp Gln Ser Asp Pro Gly Leu Ala Lys
385 390 395 400

Pro Gln His Val Thr Glu Thr Phe His Pro Asp Pro Asn Trp Lys Asn
405 410 415

Phe Gln Lys Pro Gly Thr Trp Arg Gly Ser Leu Asp Glu Ser Ser Leu
420 425 430

Gly Phe Gly Tyr Pro Lys Phe Ile Ser His Gln Asp Ile Arg Lys Arg
435 440 445

Asn Tyr Val Arg Asp Asp Ala Val Phe Ile Arg Ala Ala Val Glu Leu
450 455 460

Pro Arg Lys Ile Leu Ser
465 470

<210> 14
<211> 1105
<212> DNA

<213> Caenorhabditis elegans

<220>
<221> CDS
<222> (10)..(1017)

<400> 14

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aagtttgag atg gct caa aca aag ccg att gcc gag caa atg gct gca ctc      51
          Met Ala Gln Thr Lys Pro Ile Ala Glu Gln Met Ala Ala Leu
          1               5                  10

aac aac tca gat gac acg tcg ttc gct gcc gat cga tcg aac agt ctt      99
Asn Asn Ser Asp Asp Thr Ser Phe Ala Ala Asp Arg Ser Asn Ser Leu
15                  20                  25                  30

ctg aat gcg acg tgc ccg gcg aga att caa aat tca gta gat caa cgg     147
Leu Asn Ala Thr Cys Pro Ala Arg Ile Gln Asn Ser Val Asp Gln Arg
                35                  40                  45

aaa atc aat cga tca ttc aat gat tcg ctg tcg tcc gga tat agt gga     195
Lys Ile Asn Arg Ser Phe Asn Asp Ser Leu Ser Ser Gly Tyr Ser Gly
            50                  55                  60

aaa tgg ctt cgt cca aag cgt gaa gcg ctc aag atc act cca ttg gct     243
Lys Trp Leu Arg Pro Lys Arg Glu Ala Leu Lys Ile Thr Pro Leu Ala
        65                  70                  75

cag att gac gag gcg ccg gca act aaa aga cat agc tcg gcg aag gat     291
Gln Ile Asp Glu Ala Pro Ala Thr Lys Arg His Ser Ser Ala Lys Asp
    80                  85                  90

aag cac aca gaa tac aaa acg cga ctt tgt gat gcg ttc cgc cgt gaa     339
Lys His Thr Glu Tyr Lys Thr Arg Leu Cys Asp Ala Phe Arg Arg Glu
95                  100                 105                 110

gga tac tgc ccg tac aac gac aat tgc aca tat gct cac gga caa gat     387
Gly Tyr Cys Pro Tyr Asn Asp Asn Cys Thr Tyr Ala His Gly Gln Asp
                115                 120                 125

gag ctg aga gtt ccg aga cgc cgc caa gag tat tat tcc cga gat cca     435
Glu Leu Arg Val Pro Arg Arg Arg Gln Glu Tyr Tyr Ser Arg Asp Pro
            130                 135                 140

cca cgt gag cgc cgt gat tct cgt tct aga cga gac gac gtg gat aca     483
Pro Arg Glu Arg Arg Asp Ser Arg Ser Arg Arg Asp Asp Val Asp Thr
        145                 150                 155

aca atc aat cga tcg agt tct tca gca tcg aag cat cat gat gag aat     531
Thr Ile Asn Arg Ser Ser Ser Ser Ala Ser Lys His His Asp Glu Asn
    160                 165                 170

cgg aga ccc agc aac aac cac gga agc tcg aat cgt cgt cag att tgt     579
Arg Arg Pro Ser Asn Asn His Gly Ser Ser Asn Arg Arg Gln Ile Cys
175                 180                 185                 190

cac aat ttc gag aga gga aac tgc aga tat ggt cca aga tgc cgc ttc     627
His Asn Phe Glu Arg Gly Asn Cys Arg Tyr Gly Pro Arg Cys Arg Phe
```

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                195                 200                 205

att cac gtc gaa caa atg caa cat ttc aat gcg aat gcg acg gtt tac      675
Ile His Val Glu Gln Met Gln His Phe Asn Ala Asn Ala Thr Val Tyr
            210                 215                 220

gcg cca cct tct tcc gat tgt ccg ccg ccg att gcc tac tac cat cat      723
Ala Pro Pro Ser Ser Asp Cys Pro Pro Pro Ile Ala Tyr Tyr His His
        225                 230                 235

cat cca caa cat cag caa caa ttc ctg cca ttt cca atg cca tat ttc      771
His Pro Gln His Gln Gln Gln Phe Leu Pro Phe Pro Met Pro Tyr Phe
    240                 245                 250

ttg gct cca ccg ccg caa gct caa caa gga gct cct ttt cca gtg caa      819
Leu Ala Pro Pro Pro Gln Ala Gln Gln Gly Ala Pro Phe Pro Val Gln
255                 260                 265                 270

tat att cca cag caa cat gat ttg atg aat agc cag cca atg tat gca      867
Tyr Ile Pro Gln Gln His Asp Leu Met Asn Ser Gln Pro Met Tyr Ala
                275                 280                 285

cca atg gca ccg aca tac tac tat caa cca att aat tcg aat ggc atg      915
Pro Met Ala Pro Thr Tyr Tyr Tyr Gln Pro Ile Asn Ser Asn Gly Met
            290                 295                 300

ccc atg atg gat gtg act att gat ccg aat gcc acg ggc ggt gcg ttt      963
Pro Met Met Asp Val Thr Ile Asp Pro Asn Ala Thr Gly Gly Ala Phe
        305                 310                 315

gaa gtg ttc ccc gat gga ttc ttc tct cag cca cca cca act att att     1011
Glu Val Phe Pro Asp Gly Phe Phe Ser Gln Pro Pro Pro Thr Ile Ile
    320                 325                 330

tcc taa ttttgccgta ttttccatat tttgttttgt atatttatcc actcaccccc     1067
Ser
335

tctctttgtc ctgtgaatga acttgtgcca aaaaagcc                          1105


<210>  15
<211>  335
<212>  PRT
<213>  Caenorhabditis elegans

<400>  15

Met Ala Gln Thr Lys Pro Ile Ala Glu Gln Met Ala Ala Leu Asn Asn
1               5                   10                  15

Ser Asp Asp Thr Ser Phe Ala Ala Asp Arg Ser Asn Ser Leu Leu Asn
            20                  25                  30

Ala Thr Cys Pro Ala Arg Ile Gln Asn Ser Val Asp Gln Arg Lys Ile
```

```
        35                  40                  45

Asn Arg Ser Phe Asn Asp Ser Leu Ser Ser Gly Tyr Ser Gly Lys Trp
    50                  55                  60

Leu Arg Pro Lys Arg Glu Ala Leu Lys Ile Thr Pro Leu Ala Gln Ile
65                  70                  75                  80

Asp Glu Ala Pro Ala Thr Lys Arg His Ser Ser Ala Lys Asp Lys His
                85                  90                  95

Thr Glu Tyr Lys Thr Arg Leu Cys Asp Ala Phe Arg Arg Glu Gly Tyr
            100                 105                 110

Cys Pro Tyr Asn Asp Asn Cys Thr Tyr Ala His Gly Gln Asp Glu Leu
        115                 120                 125

Arg Val Pro Arg Arg Arg Gln Glu Tyr Tyr Ser Arg Asp Pro Pro Arg
    130                 135                 140

Glu Arg Arg Asp Ser Arg Ser Arg Arg Asp Asp Val Asp Thr Thr Ile
145                 150                 155                 160

Asn Arg Ser Ser Ser Ser Ala Ser Lys His His Asp Glu Asn Arg Arg
                165                 170                 175

Pro Ser Asn Asn His Gly Ser Ser Asn Arg Arg Gln Ile Cys His Asn
            180                 185                 190

Phe Glu Arg Gly Asn Cys Arg Tyr Gly Pro Arg Cys Arg Phe Ile His
        195                 200                 205

Val Glu Gln Met Gln His Phe Asn Ala Asn Ala Thr Val Tyr Ala Pro
    210                 215                 220

Pro Ser Ser Asp Cys Pro Pro Pro Ile Ala Tyr Tyr His His His Pro
225                 230                 235                 240

Gln His Gln Gln Gln Phe Leu Pro Phe Pro Met Pro Tyr Phe Leu Ala
                245                 250                 255

Pro Pro Pro Gln Ala Gln Gln Gly Ala Pro Phe Pro Val Gln Tyr Ile
            260                 265                 270
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Pro Gln Gln His Asp Leu Met Asn Ser Gln Pro Met Tyr Ala Pro Met
        275                 280                 285

Ala Pro Thr Tyr Tyr Tyr Gln Pro Ile Asn Ser Asn Gly Met Pro Met
    290                 295                 300

Met Asp Val Thr Ile Asp Pro Asn Ala Thr Gly Gly Ala Phe Glu Val
305                 310                 315                 320

Phe Pro Asp Gly Phe Phe Ser Gln Pro Pro Pro Thr Ile Ile Ser
                325                 330                 335
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<210> 16
<211> 2077
<212> DNA
<213> Drosophila melanogaster

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<221> CDS
<222> (301)..(1614)

<400> 16

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ttttattgtt gcaatgcaat attcgcggaa cgaataacaa caacatacat aactcaatat    120

tcaagtgcaa agcaaataca aatcaaacac aaagaaaaag caacgaaata aagatatata    180

gaaaagaaaa acaaaacgaa aaaattcgca cattttttct gtcttgtcca gtggaaaata    240

caacaaataa acaacaacgg ctaaatcaag ttaacaatct gttcaaaacc aatcaacaaa    300

atg tct gct gat att ctg cag aaa tca aga gag cag gat gat tcg cac      348
Met Ser Ala Asp Ile Leu Gln Lys Ser Arg Glu Gln Asp Asp Ser His
1               5                   10                  15

tac ttc gag cgt ggc gat ata tcc aaa tac gta acg atg aac gat cac      396
Tyr Phe Glu Arg Gly Asp Ile Ser Lys Tyr Val Thr Met Asn Asp His
            20                  25                  30

ttg ggt gat ttc gat tgc aac gag gtg cgc aag gaa ata agg atg ctg      444
Leu Gly Asp Phe Asp Cys Asn Glu Val Arg Lys Glu Ile Arg Met Leu
        35                  40                  45

ctc gcc cac ggc gcc aac ttg gat cag cag cac cag cag cag cca cat      492
Leu Ala His Gly Ala Asn Leu Asp Gln Gln His Gln Gln Gln Pro His
    50                  55                  60

cgc cac cat ggc ggt ctc aca cgc acc att tca cag ccg gcc cag ctc      540
Arg His His Gly Gly Leu Thr Arg Thr Ile Ser Gln Pro Ala Gln Leu
65                  70                  75                  80
```

```
atc cag cag cag cag cag caa cac caa cag cag cag cag cag cag cag      588
Ile Gln Gln Gln Gln Gln His Gln Gln Gln Gln Gln Gln Gln
                85                  90                  95

cca cct gtt gcc agt ctg gtg acc atc acc gag aac ctg ggc aac atg      636
Pro Pro Val Ala Ser Leu Val Thr Ile Thr Glu Asn Leu Gly Asn Met
            100                 105                 110

aac ctg cac cga aag ctg gag cga acc caa tcg gag cca ctg ccg cca      684
Asn Leu His Arg Lys Leu Glu Arg Thr Gln Ser Glu Pro Leu Pro Pro
        115                 120                 125

cag cag ccg atg aac aca tcc aga tac aag acc gag ctg tgc cgt ccg      732
Gln Gln Pro Met Asn Thr Ser Arg Tyr Lys Thr Glu Leu Cys Arg Pro
    130                 135                 140

ttc gag gag gcc gga gaa tgc aag tac ggc gag aag tgc cag ttc gcc      780
Phe Glu Glu Ala Gly Glu Cys Lys Tyr Gly Glu Lys Cys Gln Phe Ala
145                 150                 155                 160

cat gga agc cat gag ttg cga aac gtg cac cgt cat ccc aag tac aag      828
His Gly Ser His Glu Leu Arg Asn Val His Arg His Pro Lys Tyr Lys
                165                 170                 175

acg gaa tac tgc cgc acc ttc cac agc gtg ggc ttc tgt ccc tac gga      876
Thr Glu Tyr Cys Arg Thr Phe His Ser Val Gly Phe Cys Pro Tyr Gly
            180                 185                 190

ccg cgc tgt cac ttt gtt cac aat gcg gac gag gcc cgc gcc caa cag      924
Pro Arg Cys His Phe Val His Asn Ala Asp Glu Ala Arg Ala Gln Gln
        195                 200                 205

gcg gcc cag gca gcc aag tcc tcc acc cag tcg cag tcg cag tcg cag      972
Ala Ala Gln Ala Ala Lys Ser Ser Thr Gln Ser Gln Ser Gln Ser Gln
    210                 215                 220

cag tcg tcg tcg cag aac ttc tcg ccg aag agc aac cag agc agc aat     1020
Gln Ser Ser Ser Gln Asn Phe Ser Pro Lys Ser Asn Gln Ser Ser Asn
225                 230                 235                 240

caa agt agc aac agt agc agc agc agc agc agc agc ggc ggc ggc ggt     1068
Gln Ser Ser Asn Ser Ser Ser Ser Ser Ser Ser Ser Gly Gly Gly Gly
                245                 250                 255

ggc ggc ggc aac agc atc aac aac aac aac ggt agc caa ttc tat ctg     1116
Gly Gly Gly Asn Ser Ile Asn Asn Asn Asn Gly Ser Gln Phe Tyr Leu
            260                 265                 270

ccg cta agc cca ccg ctg agc atg agc aca gga tcg gac cgg gaa tcg     1164
Pro Leu Ser Pro Pro Leu Ser Met Ser Thr Gly Ser Asp Arg Glu Ser
        275                 280                 285

ccc acc gga tca ctg tcc ctc agc ccc acc aac tcg ttg acc agc ttc     1212
Pro Thr Gly Ser Leu Ser Leu Ser Pro Thr Asn Ser Leu Thr Ser Phe
    290                 295                 300
```

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ccg ttc cac gat gcc ctg cag cat gga tat ttg gca tcg aat ggc gcc     1260
Pro Phe His Asp Ala Leu Gln His Gly Tyr Leu Ala Ser Asn Gly Ala
305                 310                 315                 320

aag agc aac agt tcc gcc tcg tcc aca tca tcg gcc tct gga atg ggt     1308
Lys Ser Asn Ser Ser Ala Ser Ser Thr Ser Ser Ala Ser Gly Met Gly
                325                 330                 335

ctg ggc atg agc atg ggc atc ggc cag ggc atg atc atc ggt cag ggt     1356
Leu Gly Met Ser Met Gly Ile Gly Gln Gly Met Ile Ile Gly Gln Gly
            340                 345                 350

ttg gga atg gga cat cat gga ccg gcc aca ccg ccg gag agc ccc aat     1404
Leu Gly Met Gly His His Gly Pro Ala Thr Pro Pro Glu Ser Pro Asn
        355                 360                 365

gtg ccc ata tcg cca gtg cat aca cca cca ccg tac gat gtg gtg gtc     1452
Val Pro Ile Ser Pro Val His Thr Pro Pro Pro Tyr Asp Val Val Val
    370                 375                 380

agt gga tct gga gcg ggc aac aat agc gtt ggc agc aag cag ctc ctg     1500
Ser Gly Ser Gly Ala Gly Asn Asn Ser Val Gly Ser Lys Gln Leu Leu
385                 390                 395                 400

cag aag agc gtc agc aca ccg atg cag cag gag gat acg ccc agg ttg     1548
Gln Lys Ser Val Ser Thr Pro Met Gln Gln Glu Asp Thr Pro Arg Leu
                405                 410                 415

ccg gtt ttc aac cgt ctc agc tcc ggt gtg gag gcc tac cag cag cag     1596
Pro Val Phe Asn Arg Leu Ser Ser Gly Val Glu Ala Tyr Gln Gln Gln
            420                 425                 430

tcc aat ttg gga ctc taa acgcgtggca gtctgcgaaa caaaattgaa            1644
Ser Asn Leu Gly Leu
        435

ttgaaacacc atccagcatc caactcacgc ccatccaagc atccctccat caacaaacca   1704

gcatccttga caaaatctca gtaacgacca aaccatggaa actgaaaaca aaactactct   1764

cgcagtccaa tttgaaacgc aaatatgcca aggcaaatgg atttccggtg gcgtaacttc   1824

gttgcagaat aagtgtgtat caagtatacg ccaaacacag acacccctta attatgaacc   1884

gatccttgat atcaattctc tcattgctgt gacagtcaaa cgtaatcgtt atacaataat   1944

cgttatatga gaaggaccga attacggact actacgggac aattagttag atagatacgt   2004

aaatgacaaa caaacaatcc aagcaaacga tgatcttaaa ctataactaa atactaaaaa   2064

ctaaaaacta aca                                                      2077
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<210> 17
<211> 437
<212> PRT
<213> Drosophila melanogaster

<400> 17

Met Ser Ala Asp Ile Leu Gln Lys Ser Arg Glu Gln Asp Asp Ser His
1 5 10 15

Tyr Phe Glu Arg Gly Asp Ile Ser Lys Tyr Val Thr Met Asn Asp His
20 25 30

Leu Gly Asp Phe Asp Cys Asn Glu Val Arg Lys Glu Ile Arg Met Leu
35 40 45

Leu Ala His Gly Ala Asn Leu Asp Gln Gln His Gln Gln Gln Pro His
50 55 60

Arg His His Gly Gly Leu Thr Arg Thr Ile Ser Gln Pro Ala Gln Leu
65 70 75 80

Ile Gln Gln Gln Gln Gln Gln His Gln Gln Gln Gln Gln Gln Gln Gln
85 90 95

Pro Pro Val Ala Ser Leu Val Thr Ile Thr Glu Asn Leu Gly Asn Met
100 105 110

Asn Leu His Arg Lys Leu Glu Arg Thr Gln Ser Glu Pro Leu Pro Pro
115 120 125

Gln Gln Pro Met Asn Thr Ser Arg Tyr Lys Thr Glu Leu Cys Arg Pro
130 135 140

Phe Glu Glu Ala Gly Glu Cys Lys Tyr Gly Glu Lys Cys Gln Phe Ala
145 150 155 160

His Gly Ser His Glu Leu Arg Asn Val His Arg His Pro Lys Tyr Lys
165 170 175

Thr Glu Tyr Cys Arg Thr Phe His Ser Val Gly Phe Cys Pro Tyr Gly
180 185 190

Pro Arg Cys His Phe Val His Asn Ala Asp Glu Ala Arg Ala Gln Gln
195 200 205

Ala Ala Gln Ala Ala Lys Ser Ser Thr Gln Ser Gln Ser Gln Ser Gln
210 215 220

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Gln Ser Ser Ser Gln Asn Phe Ser Pro Lys Ser Asn Gln Ser Ser Asn
225                 230                 235                 240

Gln Ser Ser Asn Ser Ser Ser Ser Ser Ser Ser Ser Gly Gly Gly Gly
                245                 250                 255

Gly Gly Gly Asn Ser Ile Asn Asn Asn Asn Gly Ser Gln Phe Tyr Leu
            260                 265                 270

Pro Leu Ser Pro Pro Leu Ser Met Ser Thr Gly Ser Asp Arg Glu Ser
        275                 280                 285

Pro Thr Gly Ser Leu Ser Leu Ser Pro Thr Asn Ser Leu Thr Ser Phe
    290                 295                 300

Pro Phe His Asp Ala Leu Gln His Gly Tyr Leu Ala Ser Asn Gly Ala
305                 310                 315                 320

Lys Ser Asn Ser Ser Ala Ser Ser Thr Ser Ser Ala Ser Gly Met Gly
                325                 330                 335

Leu Gly Met Ser Met Gly Ile Gly Gln Gly Met Ile Ile Gly Gln Gly
            340                 345                 350

Leu Gly Met Gly His His Gly Pro Ala Thr Pro Pro Glu Ser Pro Asn
        355                 360                 365

Val Pro Ile Ser Pro Val His Thr Pro Pro Pro Tyr Asp Val Val Val
    370                 375                 380

Ser Gly Ser Gly Ala Gly Asn Asn Ser Val Gly Ser Lys Gln Leu Leu
385                 390                 395                 400

Gln Lys Ser Val Ser Thr Pro Met Gln Gln Glu Asp Thr Pro Arg Leu
                405                 410                 415

Pro Val Phe Asn Arg Leu Ser Ser Gly Val Glu Ala Tyr Gln Gln Gln
            420                 425                 430

Ser Asn Leu Gly Leu
        435
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<210> 18
<211> 3922
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (774)..(1733)

<400> 18
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ggtgggctag ggctgagtgg aaatggtgag agagattatt gtagaaaata tctcttccgg 120

gaacttaggg caaagagttt tattttcagg aatcacatcc ctgtctcccc caacctcaga 180

ccaggccccc aatctcctcc ccacaagaaa aagcaaaggc agtctgaaaa cctgttgcca 240

aaggaaggga acacttctga aggaggaagt tgagagtctt aggccaggtc ttgaaggagg 300

gggtatcaat taagcagaga ctgattggaa ggggacctaa cgtgcctatg atagactcct 360

ttctgaggtt tacctgtttt tgtcgcgggc ggtggcgggg cgggtgcggt aatctagaga 420

ggtctgggtt gtgtgagata ttttgagttg aagaatctat ttgactagta aaaaagttga 480

actttaaagt ggtagctttg gggacagagg acatgggggt tgcattgcag gagtcagcat 540

ggagcagggt gcttgtcaca cagtttggat cttgtggttt cttacgcatg gggccaaaat 600

aaacccaggt gaatggccta tgggagggag agagggaagg gagcttgcta gagccgaggt 660

agagatgagt tctttgagaa agagcgggcg tttgtgattg tgtaggggggc tgcccatagt 720

ggacatcctg gtggatgtcc tctgtcctta ccatccttct cttctctctc cag ggt 776
                                                          Gly
                                                          1

aac aag atg ctc aac tat agt gct ccc agt gca ggg ggt tgc ctg ctg 824
Asn Lys Met Leu Asn Tyr Ser Ala Pro Ser Ala Gly Gly Cys Leu Leu
          5   10   15

gac aga aag gca gtg ggc acc cct gct ggt ggg ggc ttc cct cgg agg 872
Asp Arg Lys Ala Val Gly Thr Pro Ala Gly Gly Gly Phe Pro Arg Arg
       20   25   30

cac tca gtc acc ctg ccc agc tcc aag ttc cac cag aac cag ctc ctc 920
His Ser Val Thr Leu Pro Ser Ser Lys Phe His Gln Asn Gln Leu Leu
    35   40   45

agc agc ctc aag ggt gag cca gcc ccc gct ctg agc tcg cga gac agc 968
Ser Ser Leu Lys Gly Glu Pro Ala Pro Ala Leu Ser Ser Arg Asp Ser
50   55   60   65

cgc ttc cga gac cgc tcc ttc tcg gaa ggg ggc gag cgg ctg ctg ccc 1016
Arg Phe Arg Asp Arg Ser Phe Ser Glu Gly Gly Glu Arg Leu Leu Pro

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                70                  75                  80

acc cag aag cag ccc ggg ggc ggc cag gtc aac tcc agc cgc tac aag     1064
Thr Gln Lys Gln Pro Gly Gly Gly Gln Val Asn Ser Ser Arg Tyr Lys
            85                  90                  95

acg gag ctg tgc cgc ccc ttt gag gaa aac ggt gcc tgt aag tac ggg     1112
Thr Glu Leu Cys Arg Pro Phe Glu Glu Asn Gly Ala Cys Lys Tyr Gly
        100                 105                 110

gac aag tgc cag ttc gca cac ggc atc cac gag ctc cgc agc ctg acc     1160
Asp Lys Cys Gln Phe Ala His Gly Ile His Glu Leu Arg Ser Leu Thr
    115                 120                 125

cgc cac ccc aag tac aag acg gag ctg tgc cgc acc ttc cac acc atc     1208
Arg His Pro Lys Tyr Lys Thr Glu Leu Cys Arg Thr Phe His Thr Ile
130                 135                 140                 145

ggc ttt tgc ccc tac ggg ccc cgc tgc cac ttc atc cac aac gct gaa     1256
Gly Phe Cys Pro Tyr Gly Pro Arg Cys His Phe Ile His Asn Ala Glu
                150                 155                 160

gag cgc cgt gcc ctg gcc ggg gcc cgg gac ctc tcc gct gac cgt ccc     1304
Glu Arg Arg Ala Leu Ala Gly Ala Arg Asp Leu Ser Ala Asp Arg Pro
            165                 170                 175

cgc ctc cag cat agc ttt agc ttt gct ggg ttt ccc agt gcc gct gcc     1352
Arg Leu Gln His Ser Phe Ser Phe Ala Gly Phe Pro Ser Ala Ala Ala
        180                 185                 190

acc gcc gct gcc acc ggg ctg ctg gac agc ccc acg tcc atc acc cca     1400
Thr Ala Ala Ala Thr Gly Leu Leu Asp Ser Pro Thr Ser Ile Thr Pro
    195                 200                 205

ccc cct att ctg agc gcc gat gac ctc ctg ggc tca cct acc ctg ccc     1448
Pro Pro Ile Leu Ser Ala Asp Asp Leu Leu Gly Ser Pro Thr Leu Pro
210                 215                 220                 225

gat ggc acc aat aac cct ttt gcc ttc tcc agc cag gag ctg gca agc     1496
Asp Gly Thr Asn Asn Pro Phe Ala Phe Ser Ser Gln Glu Leu Ala Ser
                230                 235                 240

ctc ttt gcc cct agc atg ggg ctg ccc ggg ggt ggc tcc ccg acc acc     1544
Leu Phe Ala Pro Ser Met Gly Leu Pro Gly Gly Gly Ser Pro Thr Thr
            245                 250                 255

ttc ctc ttc cgg ccc atg tcc gag tcc cct cac atg ttt gac tct ccc     1592
Phe Leu Phe Arg Pro Met Ser Glu Ser Pro His Met Phe Asp Ser Pro
        260                 265                 270

ccc agc cct cag gat tct ctc tcg gac cag gag ggc tac ctg agc agc     1640
Pro Ser Pro Gln Asp Ser Leu Ser Asp Gln Glu Gly Tyr Leu Ser Ser
    275                 280                 285

tcc agc agc agc cac agt ggc tca gac tcc ccg acc ttg gac aac tca     1688
Ser Ser Ser Ser His Ser Gly Ser Asp Ser Pro Thr Leu Asp Asn Ser
290                 295                 300                 305
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aga cgc ctg ccc atc ttc agc aga ctt tcc atc tca gat gac taa 1733
Arg Arg Leu Pro Ile Phe Ser Arg Leu Ser Ile Ser Asp Asp
310 315

gccagggtag ggagggacct cctgcctact ccagccccta ccctgcaccc acatcccata 1793

ccctcttctc cctacccatc ccattcccca caggccctac attaacaagg ttaagctcaa 1853

ccccttccc ccagcacctc agaatgtgcc ctccctctcc ccctcataac cccacctaac 1913

ataaggacaa gtcaatttgt cagtagcttc ttctggcttg aaacccccctc cctggatttt 1973

atagcccact taccatgcat aacagacaag tcccatattt tgtcagtaga tgccttttt 2033

tttcgcttaa gccttaagtg ccaaatcaca agagaaaaag cagtaacagt ttacagaagc 2093

aacttagtgc cttgtaatct aactttgtca ctgtgactac attacctctt cagcgccaga 2153

gggcacccgt gggcctcccg gagcctctgc ccatggcggg gtggagaccc ggaaccagca 2213

gccccctcca ctggcgacac aactgcacct tccctcattt cagtctcccg cacacttatt 2273

cctcctcccc tcttcccggt ggcacctctc cacctgtacc gccccccacc ccccccaccc 2333

ctgccccttg gaagagttgt tgccagacca gggttttggg ggaaacctgt cttgacattc 2393

aaaacctttt tcttcccgat ctgaacccct gttgactaat cttgcctggg tttgtgtagg 2453

tctgcaggaa ggaaggctga aaaagcggac gaagattttg acttaagtgg actttgtgat 2513

ttaatttttt ctttttttta agtggggagg aaggggaagc tagatggact aggagagact 2573

tgattttggt gctaaagttc cccagttcat atgtgacatc tttttaaaaa aaataacaac 2633

aaaaaaaaaa tgagagaaaa gctaaaaaaa aaaaagtaag gggtgagcag ttaatggtat 2693

tcattccaca tacaatatct gtgtaaaacg atttcctgta gaagtagctt taatggtttt 2753

tgctctagaa taccgtaggt ctatccttag agcactcacg ccatgctttc ttccctgggt 2813

tttaaacttc atataacttt cagaaattgg agagcaaaaa ttttgcttgt cactgcacat 2873

caatataaaa aagcttattt aacttatcaa aacgtattta ttgccaaact atgctttttt 2933

ttgttaattt tgttcatatt tatcgggatg acaaatccat agaatatatt cttttatgtt 2993

aaattatgat cttcatatta atcttaaaat tttgtgacgt gtctttttcc ttttttttcca 3053

cagttttaat atattattct tcaacgacat tttttgtaac tttacacttt tttggttatt 3113

ttattttaaa aaaatgaaaa attaatttaa aaaaatgcaa aaaactgttg gattatttat 3173

tttagaaatt ccccccttttg tgttggactg caaattgagt ttctttctct ttaggccttt 3233

cacaactagg actgagaatg tatgtaaaag ttctgtgaca gtacagaagg aaaacaactt 3293

tttatgtata gcttctaaaa ggggaaaaaa aaaaaaaaga gaaacccttt gacttccacg 3353

tgcccatctc aagacattcc actcacagat ttgaggttct ggattccagg tctggagttt 3413

tccaatgtta atgtaaacag aactggcaca cacacattaa gatgaatgta attattattc 3473

ctcttgctgg tcactaccgt cgctttctat ttctctttct ttgtgtgaat ttatttaaaa 3533

gaaaaaaaac tttttgtaac gactatttgc agtttaaaaa tcaataaacc ccgtttttttc 3593

aagaaacatt gatggtggag ctggttttac ttggttttgg tttgactttg ccagtaaggt 3653

tctcccccttg tataccttgc aagtcctggg gaggggggagg cggagagaga gggctgtggc 3713

tgtgggtggc ggcatctctc atccctataa gctaagccta tagctccctt ccttgatgct 3773

ggcagtttgc tgcacttaga ggggacgggg tggaggtttt ctgcaaagga gcctgtactt 3833

cctgctgtat tacttctgaa aagactgtgc agtgtgttag ttgttggctg aatagcagcg 3893

ggcccagcct tgccgacact tgtgtggcc 3922

<210> 19
<211> 319
<212> PRT
<213> Homo sapiens

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Leu Asp Arg Lys Ala Val Gly Thr Pro Ala Gly Gly Gly Phe Pro Arg
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Arg His Ser Val Thr Leu Pro Ser Ser Lys Phe His Gln Asn Gln Leu
35 40 45

Leu Ser Ser Leu Lys Gly Glu Pro Ala Pro Ala Leu Ser Ser Arg Asp
50 55 60

Ser Arg Phe Arg Asp Arg Ser Phe Ser Glu Gly Gly Glu Arg Leu Leu
65 70 75 80

Pro Thr Gln Lys Gln Pro Gly Gly Gly Gln Val Asn Ser Ser Arg Tyr
85 90 95

Lys Thr Glu Leu Cys Arg Pro Phe Glu Glu Asn Gly Ala Cys Lys Tyr
100 105 110

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Gly Asp Lys Cys Gln Phe Ala His Gly Ile His Glu Leu Arg Ser Leu
        115                 120                 125

Thr Arg His Pro Lys Tyr Lys Thr Glu Leu Cys Arg Thr Phe His Thr
    130                 135                 140

Ile Gly Phe Cys Pro Tyr Gly Pro Arg Cys His Phe Ile His Asn Ala
145                 150                 155                 160

Glu Glu Arg Arg Ala Leu Ala Gly Ala Arg Asp Leu Ser Ala Asp Arg
                165                 170                 175

Pro Arg Leu Gln His Ser Phe Ser Phe Ala Gly Phe Pro Ser Ala Ala
            180                 185                 190

Ala Thr Ala Ala Ala Thr Gly Leu Leu Asp Ser Pro Thr Ser Ile Thr
        195                 200                 205

Pro Pro Pro Ile Leu Ser Ala Asp Asp Leu Leu Gly Ser Pro Thr Leu
    210                 215                 220

Pro Asp Gly Thr Asn Asn Pro Phe Ala Phe Ser Ser Gln Glu Leu Ala
225                 230                 235                 240

Ser Leu Phe Ala Pro Ser Met Gly Leu Pro Gly Gly Gly Ser Pro Thr
                245                 250                 255

Thr Phe Leu Phe Arg Pro Met Ser Glu Ser Pro His Met Phe Asp Ser
            260                 265                 270

Pro Pro Ser Pro Gln Asp Ser Leu Ser Asp Gln Glu Gly Tyr Leu Ser
        275                 280                 285

Ser Ser Ser Ser Ser His Ser Gly Ser Asp Ser Pro Thr Leu Asp Asn
    290                 295                 300

Ser Arg Arg Leu Pro Ile Phe Ser Arg Leu Ser Ile Ser Asp Asp
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cttttagggt ctgtgccaat ggcacccaaa tttttcttct ttctttttcg ctcgtattct 180

ctcacgctct tgatcagtgt gagcagttac taatatactg gatcagagaa cattaactca 240

aaggttgata gtgtagatca ttggacatag tgtgacggtt ttgcactctt gttgcgcttg 300

ctctcttaac aagtcacatc ttatttagcc tcttcaccca taagttgatt gtaaagccgt 360

agaaccctat atcacagtct cttcggcaac tcaaccaata agaactatta aggattaaca 420

ctagcc atg atg ccg aat gtt gct cca aac agc tac tat tta aac ata 468
Met Met Pro Asn Val Ala Pro Asn Ser Tyr Tyr Leu Asn Ile
1 5 10

ccg aat gcc aat tcg acc tca acg act acg tcc tcg atc ttt tct gat 516
Pro Asn Ala Asn Ser Thr Ser Thr Thr Thr Ser Ser Ile Phe Ser Asp
15 20 25 30

ctc aac aag gag tac gag tca aag att aaa gaa atc gaa gaa tat tat 564
Leu Asn Lys Glu Tyr Glu Ser Lys Ile Lys Glu Ile Glu Glu Tyr Tyr
35 40 45

ata aag aca ctg ctc aat gaa aat acc gat aat gat gac agc agc agc 612
Ile Lys Thr Leu Leu Asn Glu Asn Thr Asp Asn Asp Asp Ser Ser Ser
50 55 60

tcc gag ggg cat aat ata aat gaa acg gac att tta agt gaa tac tca 660
Ser Glu Gly His Asn Ile Asn Glu Thr Asp Ile Leu Ser Glu Tyr Ser
65 70 75

cca agg cct tct cct tgg tta cca tcc aaa cca aac tgt tat cat ccg 708
Pro Arg Pro Ser Pro Trp Leu Pro Ser Lys Pro Asn Cys Tyr His Pro
80 85 90

ttg gga gat ttt aaa gac ttg atc ata tca gat tcc aga cct aca aat 756
Leu Gly Asp Phe Lys Asp Leu Ile Ile Ser Asp Ser Arg Pro Thr Asn
95 100 105 110

aca tta cct att aat aac cct ttc gca ggc aat aat aac atc tca aca 804
Thr Leu Pro Ile Asn Asn Pro Phe Ala Gly Asn Asn Asn Ile Ser Thr
115 120 125

ctt gct aca act gag aaa aaa cgt aag aaa agg tca ctc gaa gtt aga 852
Leu Ala Thr Thr Glu Lys Lys Arg Lys Lys Arg Ser Leu Glu Val Arg
130 135 140

gtt aac cct act tac acg aca agt gca ttt tca tta ccc ctg aca gcg 900

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Val Asn Pro Thr Tyr Thr Thr Ser Ala Phe Ser Leu Pro Leu Thr Ala
        145                 150                 155

gag aat tta caa aaa cta tct cag gtg gat tct cag tct act gga ctt      948
Glu Asn Leu Gln Lys Leu Ser Gln Val Asp Ser Gln Ser Thr Gly Leu
    160                 165                 170

cca tac aca ctt cca att cag aaa aca aca aaa ctg gaa cct tgt aga      996
Pro Tyr Thr Leu Pro Ile Gln Lys Thr Thr Lys Leu Glu Pro Cys Arg
175                 180                 185                 190

agg gca cct ttg cag ctt cct caa tta gtc aat aag acc tta tac aaa     1044
Arg Ala Pro Leu Gln Leu Pro Gln Leu Val Asn Lys Thr Leu Tyr Lys
                195                 200                 205

act gag ctc tgt gaa tct ttt act att aaa ggc tat tgt aag tat gga     1092
Thr Glu Leu Cys Glu Ser Phe Thr Ile Lys Gly Tyr Cys Lys Tyr Gly
            210                 215                 220

aat aaa tgc caa ttt gct cat ggt ctt aat gaa ctg aaa ttc aag aaa     1140
Asn Lys Cys Gln Phe Ala His Gly Leu Asn Glu Leu Lys Phe Lys Lys
        225                 230                 235

aaa tca aac aat tat aga act aaa cct tgc ata aat tgg tcg aag tta     1188
Lys Ser Asn Asn Tyr Arg Thr Lys Pro Cys Ile Asn Trp Ser Lys Leu
    240                 245                 250

ggc tac tgt ccg tac ggt aag cgt tgc tgt ttc aaa cac ggt gat gat     1236
Gly Tyr Cys Pro Tyr Gly Lys Arg Cys Cys Phe Lys His Gly Asp Asp
255                 260                 265                 270

aag gac gtt gaa ata tat caa aat gct aac gat gga aga agt aag gat     1284
Lys Asp Val Glu Ile Tyr Gln Asn Ala Asn Asp Gly Arg Ser Lys Asp
                275                 280                 285

acg gcg ttg act cca ctt cct act tcc cta gcc cca agc aac aac gat     1332
Thr Ala Leu Thr Pro Leu Pro Thr Ser Leu Ala Pro Ser Asn Asn Asp
            290                 295                 300

aat atc act aat ttg agt aag cct agg aac tta cat act agt gtt aaa     1380
Asn Ile Thr Asn Leu Ser Lys Pro Arg Asn Leu His Thr Ser Val Lys
        305                 310                 315

gca ttg caa agg atg act tgg tag tcggtcaaca acaaagccct ttgaatattt    1434
Ala Leu Gln Arg Met Thr Trp
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Ala Asn Ser Thr Ser Thr Thr Thr Ser Ser Ile Phe Ser Asp Leu Asn
20 25 30

Lys Glu Tyr Glu Ser Lys Ile Lys Glu Ile Glu Glu Tyr Tyr Ile Lys
35 40 45

Thr Leu Leu Asn Glu Asn Thr Asp Asn Asp Asp Ser Ser Ser Ser Glu
50 55 60

Gly His Asn Ile Asn Glu Thr Asp Ile Leu Ser Glu Tyr Ser Pro Arg
65 70 75 80

Pro Ser Pro Trp Leu Pro Ser Lys Pro Asn Cys Tyr His Pro Leu Gly
85 90 95

Asp Phe Lys Asp Leu Ile Ile Ser Asp Ser Arg Pro Thr Asn Thr Leu
100 105 110

Pro Ile Asn Asn Pro Phe Ala Gly Asn Asn Asn Ile Ser Thr Leu Ala
115 120 125

Thr Thr Glu Lys Lys Arg Lys Lys Arg Ser Leu Glu Val Arg Val Asn
130 135 140

Pro Thr Tyr Thr Thr Ser Ala Phe Ser Leu Pro Leu Thr Ala Glu Asn
145 150 155 160

Leu Gln Lys Leu Ser Gln Val Asp Ser Gln Ser Thr Gly Leu Pro Tyr
165 170 175

Thr Leu Pro Ile Gln Lys Thr Thr Lys Leu Glu Pro Cys Arg Arg Ala
180 185 190

Pro Leu Gln Leu Pro Gln Leu Val Asn Lys Thr Leu Tyr Lys Thr Glu
195 200 205

Leu Cys Glu Ser Phe Thr Ile Lys Gly Tyr Cys Lys Tyr Gly Asn Lys
210 215 220

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Cys Gln Phe Ala His Gly Leu Asn Glu Leu Lys Phe Lys Lys Lys Ser
225                 230                 235                 240

Asn Asn Tyr Arg Thr Lys Pro Cys Ile Asn Trp Ser Lys Leu Gly Tyr
                245                 250                 255

Cys Pro Tyr Gly Lys Arg Cys Cys Phe Lys His Gly Asp Asp Lys Asp
            260                 265                 270

Val Glu Ile Tyr Gln Asn Ala Asn Asp Gly Arg Ser Lys Asp Thr Ala
        275                 280                 285

Leu Thr Pro Leu Pro Thr Ser Leu Ala Pro Ser Asn Asn Asp Asn Ile
    290                 295                 300

Thr Asn Leu Ser Lys Pro Arg Asn Leu His Thr Ser Val Lys Ala Leu
305                 310                 315                 320

Gln Arg Met Thr Trp
                325
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